Where Teaching and Learning Meet: A Graduate Course in Statistics Education

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eCOTS 2026 "*Sparking Joy and Discovery In a World of AI.*"

STA2600 (*Teaching and Learning of Statistics in Higher Education*)

Evidence-Informed
Use research to guide teaching decisions

Instruction
Lead lessons to facilitate learning

Course Design
Align outcomes, activities & assessments

Student Thinking
Identify & address misconceptions

Peer Feedback
Evaluate and support others

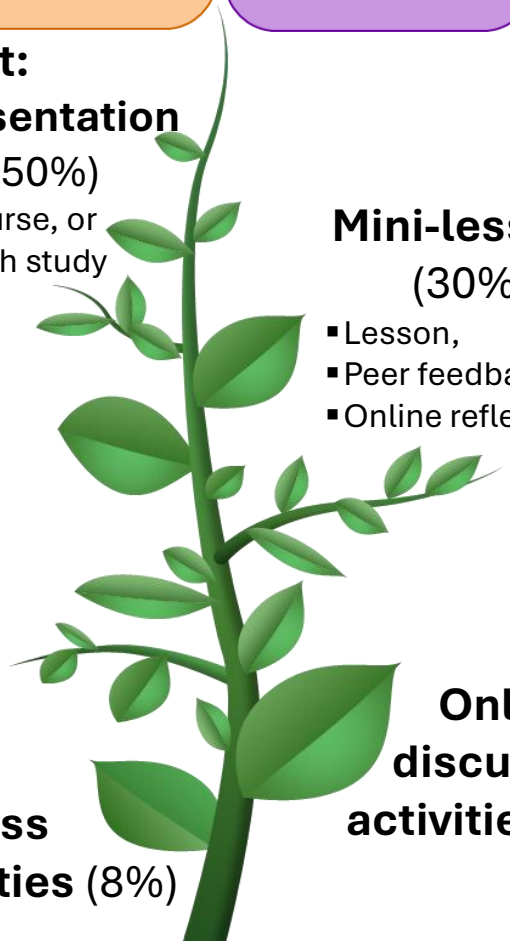
Reflection
Continuously improve practice

Constructive Alignment
Biggs & Tang (2011)

Assessment *for, as, and of* Learning
Garfield & Franklin (2011)

Project: Proposal, Presentation & Report (50%)
- Design stats course, or
- Propose research study

Mini-lessons (30%)
- Lesson,
- Peer feedback, and
- Online reflection



Online discussion activities (12%)

In-class activities (8%)

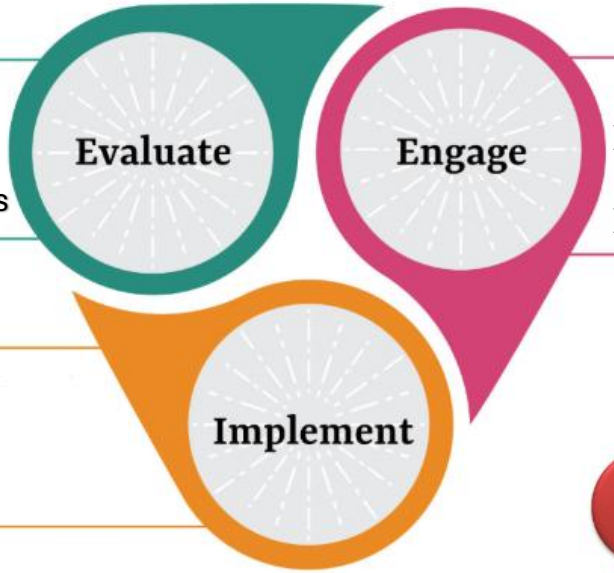
BLENDED (IN CLASS & ONLINE) LEARNING ACTIVITIES

Clarify

- Online peer feedback on implementing frameworks in projects

Search

- Present Mini-Lessons & projects as in class activities

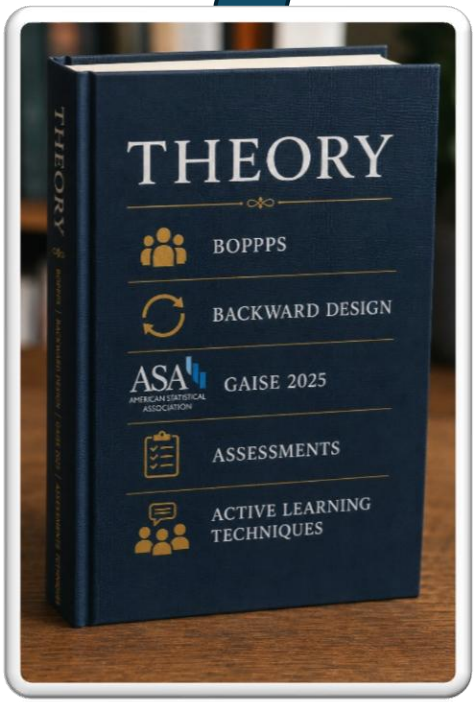


Participate

- In class and online discussions around different learning frameworks
- Activities that supported discourse

BOPPPS (e.g., Liu et al., 2025) is a student-centered instructional model that was used as a framework for mini-lesson planning and projects

Mini-lessons: put theory into practice



Lectures, discussions, readings

mini-lessons during class
(+ option for a real 50 min class placement)

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Mini-lessons

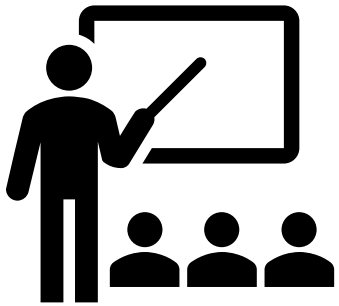
- *3 lessons for introductory statistics topic, 7 min duration*
- *must follow current GAISE guidelines and include all BOPPPS elements*
- *option to teach a real large class for the 3rd lesson*
- *feedback from peers and instructor*
- *written reflection*

This counts toward the teaching practicum component of Teaching Assistants' Training Program (TATP) certificates at the University of Toronto

Practice based project: Course design

Syllabus design

Teaching methods



Learning outcomes

Major assessment

Peer discussion on topics

Proposal

Peer discussion on literature

Presentation

Final report

This project can be used toward the **Course Design Certificate** of the Teaching Assistants' Training Program (TATP) at the University of Toronto

The research-based project path in STA2600

Designing a SoTL study through proposal, peer feedback, and revision

Course deliverables	**Proposal** Frame the question	**Presentation** Explain the design	**Discussion Q&A** Use peer questions	**Final Report** Revise the proposal
SoTL design work	**Question + literature** Issue, scholarship, gap	**Study design + ethics** Participants, data, consent	**Peer Feedback** Test design choices	**Full Plan + Contribution** Analysis plan, SoTL value

Peer questions improve the study design

Measurement

"How will outcomes be measured?"

Feasibility

"Can this be done within the course context?"

Generalizability

"Who would the findings speak to?"

Ethics/Validity

"How are participants protected?"

This project can be used toward the **Scholarship of Teaching and Learning (SoTL) Certificate** of the Teaching Assistants' Training Program (TATP) at the University of Toronto

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Let's continue the conversation on Zoom!

Monday, June 15, 3:30-4:15pm ET

References

Biggs, J & Tang, C. (2011). *Teaching for quality learning at university: what the student does* (4e). Maidenhead, UK: Open UP / McGraw-Hill.

Garfield, J., & Franklin, C. (2011). "Assessment of learning, for learning, and as learning in statistics education". In *Teaching statistics in school mathematics-challenges for teaching and teacher education: A Joint ICMI/IASE Study: The 18th ICMI Study* (pp. 133-145). Dordrecht: Springer Netherlands

Guidelines for Assessment and Instruction in Statistics College Report (2025 version). Available at https://amstat.quarto.pub/college-gaise/

Liu, J, Omar, SZ, Wang, Y, & Xiang, Y. (2025). "BOPPPS model implementation and students' performance: a systematic literature review". In *Frontiers in Education* (Vol. 9, p. 1467225). Frontiers Media SA.