



Active Learning in Math & Stats: A Graduate Teaching Assistant (GTA) Training and Development Program

By: Chelsea Uggenti
Ph.D. Candidate in Statistics
University of Western Ontario



TABLE OF CONTENTS

02

WHERE?

Where is it taking place?

04

WHEN?

When will the program be offered?

06

HOW?

How will it go?!

01

WHY?

Why are we doing this?

03


WHO?

Who is the program for?

05

WHAT?

What does the program entail?





WHY?

Benefits of GTA teaching development programs:

- Improves teaching confidence
- Emphasizes importance of pedagogical training
- Shifts instructor-centred mindset to learner-centred one



Crucial Gap:

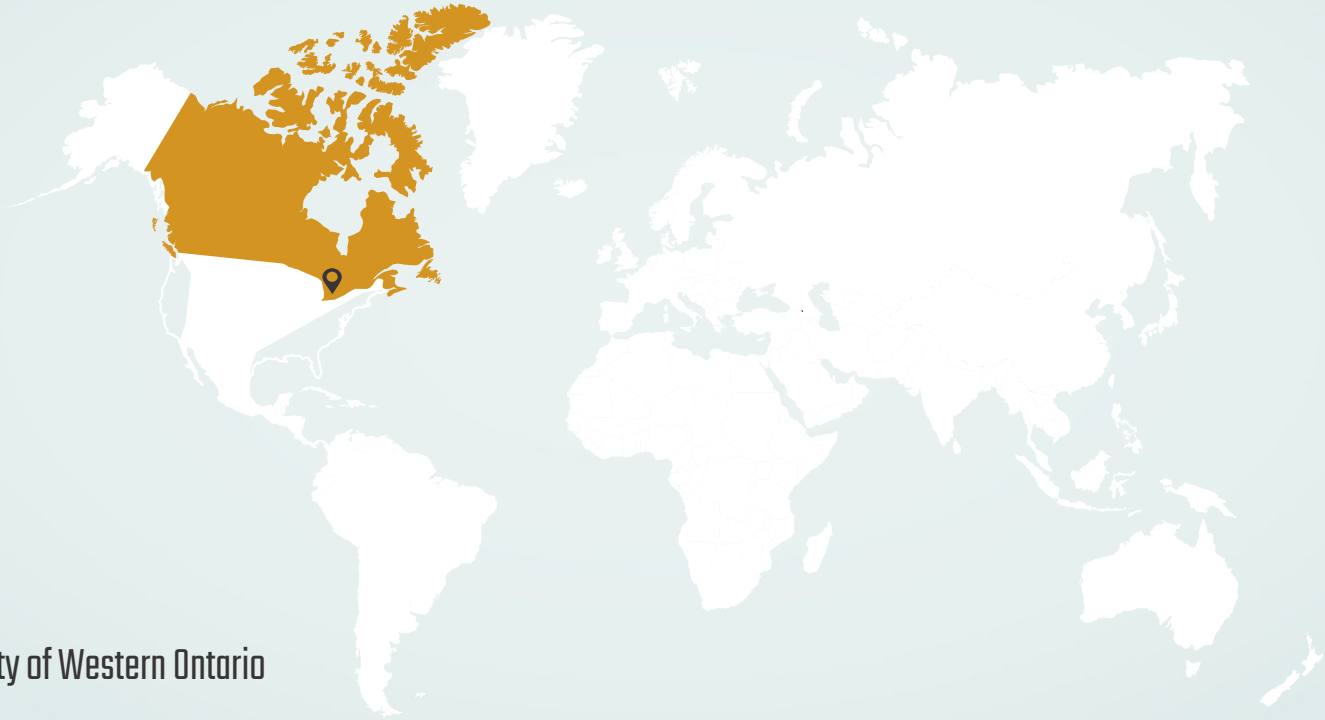


“Although there are programs that exist to prepare science graduate teaching assistants (GTAs) to be more effective instructors, there is a **dearth of primary research** on the subject. What do programs geared toward developing the teaching skills of science GTAs look like? More importantly, **how effective are these programs** at changing misconceptions and beliefs about science teaching and learning of science GTAs?”
— Gardner & Jones (2011), pg. 34

WHERE?



OUR LOCATION



The University of Western Ontario



Canada

Western Active Learning Spaces



https://www.uwo.ca/wals/classroom_spaces/room_information.html

WHO?



Participants

Students in research-focused graduate programs (MSc, PhD) in departments of Mathematics and Statistical and Actuarial Sciences.



An abstract graphic design on the left side of the page. It features several overlapping organic shapes in shades of orange, olive green, and dark grey. A central dark grey shape contains a white circle with the number '04' in white. Other shapes include a large orange shape with a white circle, a white shape with a blue circle, and a dark grey shape with a teal circle. There are also several small circles in various colors scattered around the main shapes.

04

WHEN?

September, 2021

An abstract graphic design featuring a central white teardrop shape with a dark blue circle inside containing the number '05'. This central element is connected to other shapes: a blue ring-like shape on the left, a green vertical bar above, and an orange teardrop shape on the right. Scattered around are various colored circles in shades of blue, green, orange, and black. The background is a light, pale blue.

05

WHAT?

WORKSHOP STRUCTURE

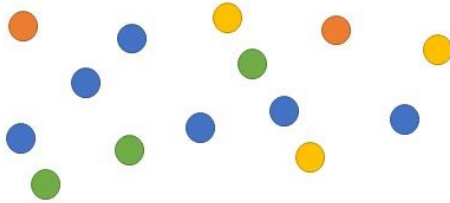


Motivating
Activity

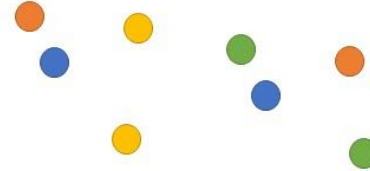
Dotmocracy

Dotmocracy Activity

I've never tried active learning before and I'm very skeptical.



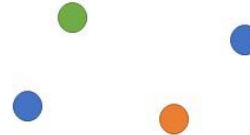
I don't think active learning is needed in maths/stats courses.



Active learning activities make it easier for me to learn math/stats content.



I've taken an undergraduate math/stats course that included active learning.



WORKSHOP STRUCTURE

Motivating
Activity

Dotmocracy

Intro & LOs

*Quescussion;
Think-Pair-Share*

Learning Outcomes

- **Describe** the concept of **active learning**, including how it differs from traditional teaching approaches.
- **Explain** the **benefits and limitations** of active learning activities used in undergraduate university mathematics and statistics courses.
- **Develop strategies** for implementing active learning activities in **different types of environments**, such as small labs/classes, large labs/classes, and online.
- **Evaluate** the **effectiveness** of active learning activities using classroom assessment techniques.

WORKSHOP STRUCTURE

Motivating
Activity

Dotmocracy

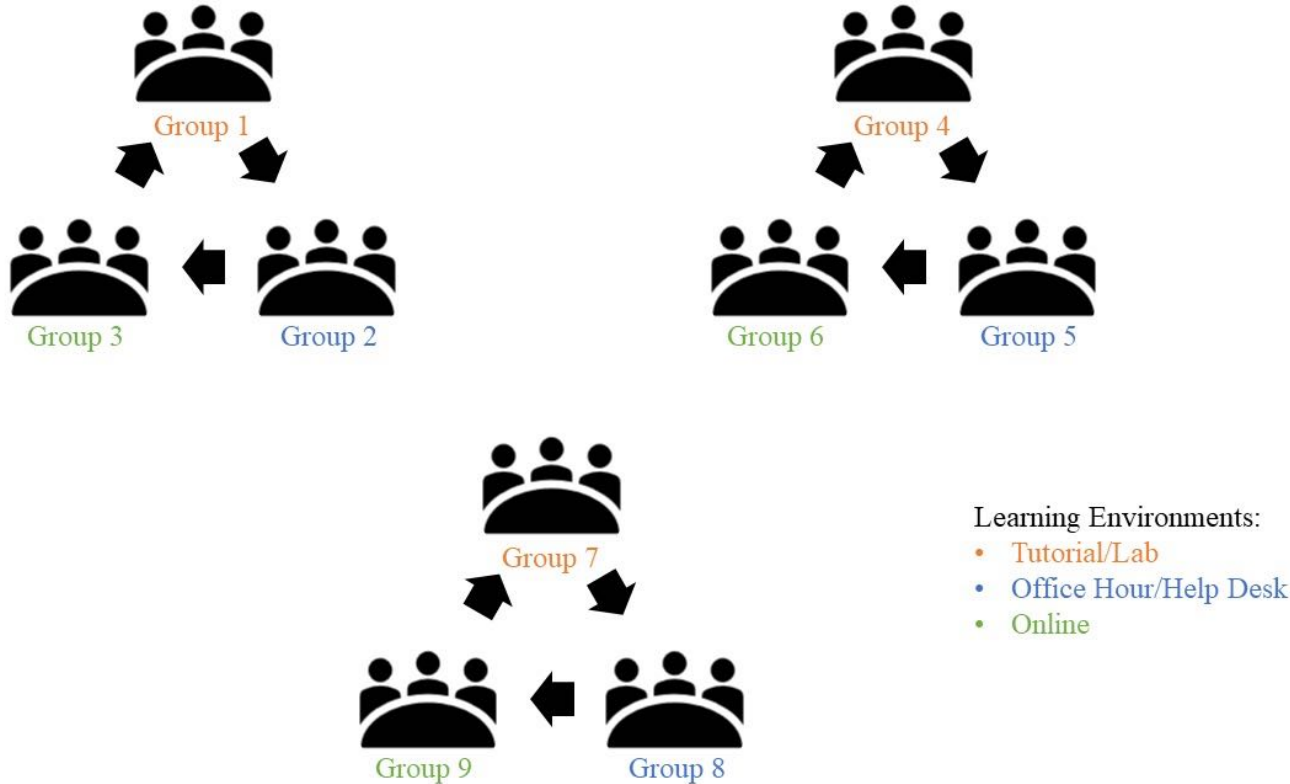
Intro & LOs

*Quescussion;
Think-Pair-Share*

Participatory
Learning

*Café
Conversation*

Café Conversation



Steps:

1. Reflect
2. Examples
3. Possible benefits & limitations
4. Overcome & evaluate
5. Group discussion

WORKSHOP STRUCTURE

Motivating
Activity

Dotmocracy

Intro & LOs

*Quescussion;
Think-Pair-Share*

Participatory
Learning

*Café
Conversation*

Post-
Assessment

Minute Paper

Summary

Handout

Note:

Loosely follows BOPPPS model



HOW WILL IT GO?!

THANK YOU

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, and infographics & images by **Freepik**

