Post-secondary Mathematics and Statistics Education in the genAI Era: Adaptations and Impacts on Teaching and Learning, and Departmental Policies
L'enseignement des mathématiques et des statistiques dans l'enseignement supérieur à l'ère de l'IA générale : adaptations et répercussions sur l'enseignement et l'apprentissage, et politiques départementales
(Org: **Chantal Buteau** (Brock University), **Ami Mamolo** (Ontario Tech University), **Alejandro Martín-Gonzalez** (Université de Montréal) and/et **Kitty Yan** (University of Toronto))

JASON BRAMBURGER, Concordia University
From Solving Problems to Seeing the Mathematics: AI, Access, and Assessment in Applied Mathematics Teaching

Generative AI is creating new opportunities to improve accessibility, integrate computation into applied mathematics, and reconsider what students should learn. AI-generated transcripts and translations can make online course materials available to a much wider audience, while AI-assisted coding can turn computation into a stepping-stone toward deeper mathematical understanding rather than a separate technical prerequisite. AI can also support curriculum development by helping instructors refine learning goals and design exercises that emphasize comparison, interpretation, and synthesis instead of routine application. As conventional problems become easier to automate, greater emphasis can be placed on explaining definitions and results, connecting ideas across a course, and interpreting what computed answers mean. These changes encourage students to see the broader mosaic of modern applied mathematics rather than a collection of isolated techniques. At the same time, in-person tests and hard-copy assignments remain valuable for obtaining reliable evidence of individual learning.

CARMEN BRUNI, University of Waterloo
Let $\epsilon = 0$

CS116 is an imperative programming course taught online using Python at the University of Waterloo. Since 2025, advances in generative artificial intelligence have reached a point where questions that were previously assigned as homework in CS116 can now be completely solved using these tools. This has created several pressing issues related to student motivation and what the role of homework should be in this new age of intelligence.

In this talk, we present the history of the course, changes in student motivation and some of the approaches we have taken to encourage students to engage meaningfully with course content despite the ubiquity of generative artificial intelligence tools. We will also discuss how the course has been adapted to respond to this significant change as well as the pedagogical considerations that have guided these decisions about whether, where and how these tools should be integrated into teaching and learning.

Computer science, mathematics and statistics face a shared challenge. We conclude by dedicating time to discussing whether some of the competencies previously developed in this course remain fundamental and relevant in a world where generative artificial intelligence can solve many of the problems previously assigned to students as well as some of the opportunities this disruptive technology can bring to our classrooms.

CHANTAL BUTEAU, Brock University
Panelist (Discussion Panel)
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FRANCE CARON, Université de Montréal

DISCUSSION AND FINAL REMARKS,

SCHINELLA D'SOUZA, University of Toronto
Adapting Together: Student and Instructor Perspectives on GenAI

In this talk, I will share my experiences teaching large first-year math courses and my evolving perspectives on assessing mathematical understanding in the age of GenAI. These experiences have prompted me to reflect on the role of GenAI in my teaching and curriculum development, including both the opportunities it offers and the limitations of its use. Rather than prescribing how students should or should not use GenAI, I will draw on student reflections to explore how they engage with it and how they believe it could be integrated into their course experience. By considering both student and instructor perspectives, we will explore how we can adapt together while maintaining the fundamental mathematical skills needed for the future.

BERNARDO GALVAO-SOUSA, University of Toronto

CODY HYNDMAN, Concordia University
Teaching Mathematical and Computational Finance with Generative AI: What Should Students Be Able to Do Independently?

In mathematical and computational finance, students learn to translate financial questions into mathematical models, implement those models, and interpret the results. When generative AI can produce a working implementation from a short prompt, what should students still be able to do independently, and how can an instructor tell? I consider these questions through an example from option pricing. A simulation can produce a plausible price with a narrow confidence interval even when the underlying asset has been simulated under the wrong probability measure. What would a student need to understand to recognize and correct the error? Drawing on my experience teaching mathematical and computational finance, I discuss how an assignment built around this example could combine AI-assisted implementation with an independent explanation of the modelling assumptions. I close by considering which skills a mathematical finance curriculum should develop before students are asked to evaluate AI-generated work.

CAROLINE JUNKINS, McMaster University
A Tale of Two Office Hours

In the current "GenAI revolution", students are changing the ways in which they access information and ask questions. Similarly, instructors are changing the ways in which they share information and respond to questions. How are these changes reshaping interactions between students and instructors? In this age of wisdom and this age of foolishness, how can we encourage critical thinking and productive struggle? In this presentation I will share observations from two contrasting experiences in office hours for undergraduate calculus courses, exploring the different roles played by GenAI in each. I will reflect on how my own approach to GenAI contributed to the outcomes and discuss how these experiences are shaping my office hours going forward.

AMI MAMOLO, Ontario Tech University & Fields Centre for Mathematics Education
Rethinking Task Design for Mathematical Thinking in a GenAI World

Tasks and task design are at the heart of effective mathematics teaching and learning. In this session, we will draw on research insights from mathematics education and GenAI literacy to explore issues and tensions related to the design and implementation of tasks intended to foster mathematical thinking. Through discussion and critical questioning, we will explore how rethinking task design might help navigate such tensions.

ALEJANDRO MARTÍN-GONZALEZ, Université de Montréal

JÉRÔME PROULX, Université de l'Ontario français – UQAM
Some (naïve) reflections about mathematics in a GenAI era

In this presentation, I build on issues of the history of computer science to draw some parallels between the advent of computer science in mathematics and the current GenAI era (for mathematics) that we are actually living in. These parallels are addressed through raising a series of distinctions that were historically made in computer science and strongly grounded in mathematical issues and related technologies. The intention through these parallels and distinctions is to offer an occasion for reflecting on our current state of GenAI affair in mathematics and its potential for what might be a not-too-far future in (university) mathematics education and teaching.

CAMERON REDSELL-MONTGOMERIE, Mohawk College
When the Metric Breaks: Assessment Validity and the GenAI Disruption in Statistics Education

Generative AI has severed the assumed link between a completed statistical analysis and demonstrated statistical reasoning, undermining the validity of many long-standing assessment tools in introductory statistics and research methods courses. Drawing on measurement theory and two concrete departmental responses with a data-audit workflow for flagging possible AI-assisted submissions and a redesigned, process-focused assessment model. This talk reflects on what each approach preserves, what it costs instructors and students, and where the field still lacks good answers.

ALISTAIR SAVAGE, University of Ottawa
From solution generator to learning partner

Rather than asking whether students should use AI, we are asking how AI can be designed to support the kind of learning we actually want. I will describe experiments with custom AI tutors for first-year mathematics and some of the opportunities and challenges we have encountered.

AFTERNOON SESSION INTRODUCTION,

MORNING SESSION INTRODUCTION,

PETER TAYLOR, Queens University

WELCOME-INTRO,