Summer Conference for Mathematics Educators in Waterloo

Educators teaching Grades 9 to 12

The Centre for Education in Mathematics and Computing (CEMC) at the University of Waterloo provides professional development opportunities for mathematics educators. Our programs respond to the need for practical and enrichment information that can be implemented immediately in the classroom. This August, we offer a three-day conference, with focus on curriculum, extensions and enrichment aimed at university preparation.

The sessions on curriculum will focus on problem solving at any academic level. This conference will increase your tools and skills and enhance your teaching of mathematics.

While the curriculum sessions are directed specifically at educators from Ontario, educators from any province or country will benefit. This conference attracts educators from all over the world and offers an excellent opportunity to meet and exchange ideas. Educators should have some previous teaching experience in an elementary or high school.

Whatever your personal, professional, or mathematical goals, our conference can give you the edge you want.

Conference dates: Tuesday, August 13 to Thursday, August 15, 2024

(Limited enrolment so it is better to register early)

*Participant cost of **$250** includes accommodation, meals, conference materials, and taxes.*

Participation is restricted to two teachers per school.

Accommodation in a dormitory room is provided at no additional cost, if needed.

Register online, by visiting https://www.cemc.uwaterloo.ca/events/mathteachers.html

For more information, please contact cemc.events@uwaterloo.ca

UNIVERSITY OF WATERLOO | The CENTRE for EDUCATION in MATHEMATICS and COMPUTING

Program Schedule

Dates: Starting Tuesday, August 13 at 8:30 a.m., ending Thursday August 15, 2024, at 1:00 p.m.
Location: St. Jerome's University (SJU) and Mathematics and Computing Building (MC), University of Waterloo
Program: The conference will help to supplement your teaching of mathematics on problem solving and provide some new resources and teaching strategies.

Date and Time	Activity
Monday, August 12	
3:00 p.m. - 8:00 p.m.	Early Registration in St. Jerome's University (SJU)
5:00 p.m. - 6:00 p.m.	Dinner in St. Jerome's University (SJU)
9:00 p.m. - 10:30 p.m.	Pizza and refreshments in St. Jerome's University (SJU)
Tuesday, August 13	
7:30 a.m. - 8:30 a.m.	Registration and breakfast in St. Jerome's University (SJU)
8:45 a.m. - 10:15 a.m.	Welcome
10:30 a.m. - noon	**Session 1:** Integrating Problem Solving in Grades 9 and 10 *Jason Van Rooyen*
noon - 1:00 p.m.	Lunch in MC
1:00 p.m. - 2:30 p.m.	**Session 2:** Using the Concrete-Diagrammatic-Symbolic Continuum in High School Math *Mike Jacobs*
2:45 p.m. - 4:15 p.m.	**Session 3:** Coding your way through Grade 9 Math *Sheri Hill, Nathan Rowbottom*
5:15 p.m. - 6:30 p.m.	Dinner in St. Jerome's University (SJU)
6:30 p.m. - 7:30 p.m.	Campus tour beginning from the front foyer of St. Jerome's University (SJU)
7:30 p.m. - 10:00 p.m.	Social
Wednesday, August 14	
7:30 a.m. - 8:30 a.m.	Breakfast in St. Jerome's University (SJU)
8:45 a.m. - 10:15 a.m.	**Session 4:** Problem Solving *Shane Bauman*
10:30 a.m. - noon	**Session 5:** Introducing Desmos Classroom for Secondary Math Classes *David Petro*
noon - 1:00 p.m.	Lunch in MC
1:00 p.m. - 2:30 p.m.	**Session 6:** Assessing Assessment - Is our Marking on Target? When is Wrong more Right? *Rich Dlin*
2:45pm - 4:15 p.m.	**Session 7:** Out of this World: NASA/CSA Resources for Math Educators *Carly Ziniuk*
6:00 p.m. - 10:00 p.m.	Social
Thursday, August 15	
7:30 a.m. - 8:30 a.m.	Breakfast in St. Jerome's University (SJU)
8:45 a.m. - 10:15 a.m.	**Session 8:** The Course Everyone Should Take *Lindsay Parchimowicz*
10:30 a.m. - noon	**Session 9:** Data Science with Data Dunkers *Peter Beens*
12:00 p.m.	Wrap-up. Final Thoughts.
12:05 p.m.	Lunch in St. Jerome's University (SJU)

Synopses of Sessions

Session 1: Integrating Problem Solving in Grades 9 and 10
Jason Van Rooyen
This session will examine the when, where and how of using problem solving in grades 9 and 10. A wide variety of problems will be examined and discussed, with varying levels of difficulty.

Session 2: Using the Concrete-Diagrammatic-Symbolic continuum in High School Math
Mike Jacobs
Although arrays are first learned in the primary years, their power extends far into high school and beyond. Join me as we see how a concrete-diagrammatic-symbolic approach will help students learn about simple factoring in grade 9 and connect this to quadratic expressions in grade 10 (including perfect squares and difference of squares) and the factor theorem in grade 12.

Session 3*:* Coding your way through Grade 9 Math
Sheri Hill, Nathan Rowbottom
In Ontario, the Ministry has added the Coding Expectation to the Algebra Strand for the new grade 9 curriculum. However, coding should not be restricted to a single unit alone! Students should be able to view and interact with Math via coding in all aspects of the curriculum and beyond. In this session, we will provide pre-made activities that span the curriculum which non-coding teachers have used successfully in their classes. There will also be provided time for participants to play, tinker, and become comfortable to implement in their own classrooms. Note: No other coding experience is required.

Session 4: Problem Solving
Shane Bauman
In this session, we will have some fun solving some interesting problems. We'll look at different approaches to these problems and talk about some general problem-solving techniques.

Session 5: Introducing Desmos Classroom for Secondary Math Classes
David Petro
Desmos Classroom (formerly Desmos Activity Builder) is a powerful and free tool that lets you run activities from all areas of math in such a way that fosters communication with and between students, allows you to see what they are doing on their computers from yours, and helps you probe student work for good and interesting thinking at the click of a mouse (among other things). In this session you will be introduced to several ready-made lessons for secondary math students, shown how to navigate the teacher dashboard, and more. Bring a laptop, Chromebook, or tablet to make the best of this session.

Session 6: Assessing Assessment - Is our Marking on Target? When is Wrong more Right?
Rich Dlin
In this session, we will explore times when there can be a significant disconnect between test scores and student ability in mathematics. Common assessment practices will be explored for inconsistencies and the mixed messages they can send to our students.

Session 7: Out of this World: NASA/CSA Resources for Math Educators
Carly Ziniuk
With our theme "Building an Inclusive Global Space Community," the NASA Space Apps Collective is using open data to spark innovations. As a Collective member and classroom teacher, I will share free, easily accessible NASA/CSA astronomy, space, and climate resources. Learn how to apply open datasets, use beautiful satellite images, stream video content, incorporate local "Astroindigenous" knowledge, download posters, find ready-to-use lesson plans with solutions, make Canadian connections, and illustrate math concepts with astronomy facts.

Session 8: The Course Everyone Should Take
Lindsay Parchimowicz
Financial stress is a fact of our adult lives. Learn how you can run a course to help your students be equipped to deal with all the money issues that begin in post-secondary and continue for the rest of their lives. This is the math everyone needs to know for life! We've successfully run the course for 7 years with many students saying it was the most useful course they took in high school. Come out to get resources to run the full course and hear how we ran a Personal Finance course for our College and University bound students.

Session 9: Data Science
Peter Beens
Embark on an exciting journey into data science with the Data Dunkers program, tailored to inspire educators to bring the world of numbers to life. This engaging workshop is designed to leverage the power of Jupyter Notebooks, Python, and Pandas to unravel the fascinating stories told by sports statistics. With a spotlight on NBA phenomenon Pascal Siakam and the Toronto Raptors, we reveal how the magic of math can be applied to real-world scenarios, making it both fun and accessible. This workshop is an excellent opportunity for math educators to enrich their teaching toolkit by integrating elements of coding and data analysis into their lessons. No previous knowledge of basketball is required to enjoy this exploration. Participants will leave equipped with the know-how to make data science an engaging part of their classroom experience. Note: Attendees are encouraged to have a Google account that has access to Google Colab (https://colab.research.google.com).