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**Mini-Courses**  
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**CHRIS FISHER, BRETT STEVENS AND TIM ALDERSON**, University of Regina, Carleton University and University of New Brunswick  
*Geometry Workshop*

This is a tutorial for people who might know little or nothing about finite geometry to give them an understanding of the basic definitions and objects (planes, spreads, ovals, pencils, nets . . .). The goal of this session is not to try to get to latest developments in the field, but to give a conference attendee the background needed to understand the research talks presented in the Geometry Session.

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**KRYSTAL GUO**,  
*Using the Sage Mathematics Software System in Algebra and Discrete Math*

Whether doing research or course work, computations software can be a useful tool. This is a focused session on using SageMath with examples motivated from algebra, graph theory and geometry.

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**ALLEN HERMAN AND KAREN MEAGHER**, University of Regina  
*Minicourse on Building Your Career in Mathematics*

This will be a general interest minicourse for graduate students and early-career mathematical scientists.

There will be facilitated discussions on (i) New technologies in Math (such as SAGE); (ii) Preparing a good CV; and (iii) Non-academic Mathematics Job Hunting

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**SARAH PLOSKER AND NATHANIEL JOHNSTON**, CRC Chair, Brandon and Mount Allison  
*Basics of Quantum Information Theory*

An introduction to quantum information theory, including important mathematical concepts and physical motivation.

This minicourse will be related to the special session in Quantum Information Science.

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**HADI SALMASIAN**, University of Ottawa  
*Interpolation polynomials and representation theory: transcending the classical Capelli identity*

This self-contained mini-course will cover recent progress on connections between interpolation symmetric polynomials and Lie theory. It will be accessible to all graduate students and advanced undergraduate students, and is tuned for those who are interested in algebra or combinatorics.

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**JONATHAN SCOTT**, Cleveland State University  
*Category Theory in Topological Data Analysis*

We explore how a category-theoretical perspective informs and unifies various notions of persistence and proximity in topological data analysis. Only elementary knowledge of category theory (namely, functors and natural transformations) will be assumed.

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**KONSTANTIN TIKHOMIROV**, Georgia Tech  
*Convex-Geometric Methods in Random Matrix Theory*

This course's primary focus is covering arguments which have been very efficient in estimating the condition number and, more generally, the singular values of random matrices and found applications in numerical analysis and compressed sensing. No previous research experience in the random matrix theory is required for the course.