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THE NEWSLETTER IS A PUBLICATION OF THE CANADIAN MATHEMATICS EDUCATION STUDY GROUP

CMESG is a group of mathematicians and mathematics educators who meet annually to discuss mathematics education issues at all levels of learning. The aims of the Study Group are:

- 1) to study the theories and practices of the teaching of mathematics
- 2) to promote research in mathematics education
- 3) to exchange ideas and information about all aspects of mathematics education in Canada
- 4) to disseminate the results of its work.

CE BULLETIN EST UNE PUBLICATION DU GROUPE CANADIEN D'ÉTUDE EN DIDACTIQUE DES MATHÉMATIQUES

Le GCEDM est composé de personnes œuvrant en mathématiques et en didactique des mathématiques et qui se réunissent une fois par année pour étudier diverses questions relatives à l'enseignement des mathématiques à tous les niveaux. Les buts du Groupe sont les suivants:

- 1) susciter une réflexion critique sur la théorie et la pratique de l'enseignement des mathématiques
- 2) encourager la recherche en didactique des mathématiques
- 3) faciliter l'échange d'idées et d'information sur tous les aspects de l'éducation mathématique au Canada
- 4) faire connaître les résultats de ses travaux

President's message du président

Peter Liljedahl

It feels like the 42nd meeting of CMESG just concluded and already the 43rd meeting at St. Francis Xavier University in Antigonish, Nova Scotia is just around the corner (May 31 – June 4). The executive has been working hard to put together a stimulating scientific program. I want to thank all the CMESG members who have agreed to step up and give their time and their energy in making the upcoming meeting both engaging and inspiring. At the same time, I want to thank our hosts, Lisa Lunney Borden, Tara Taylor, and Evan Throop-Robinson, for their hard work around the logistics of running a meeting. From registration, to accommodations, to room scheduling, to meals and coffee breaks, to the excursions, to the all important social events, planning a CMESG meeting takes a tremendous coordination of planning, logistics, and foresight – and the Antigonish team has been working hard to make sure every contingency is accounted for. Taken together, everything is in place for the 43rd meeting of CMESG to be a memorable scientific and social event.

I look forward to seeing all of you in Antigonish.

C'est comme si la 42^e rencontre du GCEDM venait juste de se terminer et déjà c'est l'heure de la 43^e réunion à St. Francis Xavier University à Antigonish en Nouvelle-Écosse (31 mai au 4 juin). Le comité exécutif a travaillé fort pour construire un programme scientifique stimulant. Je veux remercier tous les membres qui ont accepté de s'impliquer et de donner de leurs temps et énergie pour permettre à cette prochaine rencontre d'être engageante et inspirante. J'en profite aussi pour remercier nos hôtes, Lisa Lunney Borden, Tara Taylor et Evan Throop-Robinson pour leurs grands efforts pour organiser cette rencontre. De la planification de l'inscription, à l'hébergement, en passant par la réservation de locaux, des repas, du café, des excursions et des événements sociaux importants, l'organisation des rencontres du GCEDM demande d'énormes efforts de coordination, de planification, de logistique et de prévoyance – l'équipe responsable de la rencontre d'Antigonish a travaillé très fort pour s'assurer de son bon déroulement. Tout est réuni pour que la 43^e rencontre du GCEDM soit un événement scientifique et social mémorable.

Au Plaisir de vous voir tous à Antigonish!



2019 Summer Meeting
Réunion d'été 2019
June 7 -10 juin

Assessment in Mathematics

Organizers: Shannon Ezzat (Winnipeg) and Rebecca McKay (UNB)

Indigenization and Reconciliation in Mathematics

Organizers: Douglas Farenick (Regina) and Keith Taylor (Dalhousie)

University of Regina | Université de Regina



We welcome you to St. Francis Xavier University for the 43rd Annual Meeting of CMESG/GCEDM.

Nous sommes heureux de vous souhaiter la bienvenue à l'Université Saint-Francis-Xavier pour la 43^e rencontre annuelle du GCEDM/CMESG

CMESG May 31-June 4, 2019

GCEDM 31 mai au 4 juin, 2019

Jobs / emplois

University of Guelph
Department of Mathematics and Statistics

Teaching mathematics (6 courses) and helping with recruitment efforts. 1-year contractually-limited at the Assistant Professor level. Deadline **May 15, 2019**. Applications should be sent to Dr. Horrocks jhorrock@goguelph.ca. For more information see:

<https://cms.math.ca/Employment/acad/1492>

McMaster University
Department of Mathematics and Statistics

1-year contractually-limited at the Lecturer or Assistant Professor level. Duties include teaching 6 courses. Applications are due August 1, 2019 through mathjobs. For more information fogarty@mcmaster.ca and see:

<https://www.mathjobs.org/jobs/jobs/13887>

Members' activities / Activités des membres



First Year Mathematics
Repository Workshop
Banff International
Research Station, Banff,
AB

February 8-10, 2019

Andie Burazin, University of Toronto, Mississauga, **Veselin Jungic**, Simon Fraser University, and **Miroslav Lovric**, McMaster University



The **First Year Mathematics Repository Workshop** [4] was an important event within an ongoing National dialogue [2] on the present and future of teaching first-year mathematics and statistics at Canadian universities. The dialogue takes different forms: from informal meetings of colleagues from the same department to discussions and exchanges of ideas over social media; and from conducting surveys and writing academic papers to regional and national workshops and conferences.

The workshop was built on, and informed by, the outcomes of the 2017 CMESG Meeting in Montreal, Quebec, in particular the Working Group *Teaching First Year Mathematics Courses in Transition from Secondary to Tertiary*, the 2017 CMS Winter Meeting Education session in Waterloo, Ontario, and the First Year University Mathematics Across Canada: Facts, Community and Vision conference at the Fields Institute in Toronto, Ontario (27-29 April 2018). For the summary of the conference at the Fields Institute please see [1].

The themes that were addressed in the plenary sessions, working groups and other activities were related to the so-called “service courses,” perhaps best described as (often massive) courses offered by mathematics departments that serve students other than mathematics or statistics majors. ‘How do different institutions and different instructors find the balance between introducing a relatively complex math content and meeting the needs of the specific program that the course “services”?’ was the guiding question.

More specifically, the workshop participants addressed the following questions:

1. What makes a math and/or stats service course program-specific, and what are the challenges in addressing specific needs of these programs?
2. To what extent (if at all) are the service courses outcomes of the collaborations between the department of mathematics and/or statistics and another academic unit?
3. How do we address the diversity of the student populations within service courses?
4. What are the available learning resources for service courses?

The BIRS workshop also served as a crucial step in further promotion and development of *The First Year Mathematics and Statistics Courses Repository* [3], a resource supporting this ongoing national dialogue. This shareable dynamic online database contains extensive data, collected from mathematics instructors across the country, including course content, resource and technology used, learning outcomes, modes of delivery, connections with other courses, as well as informal descriptions of various practices in teaching these courses.

The workshop was able to achieve its main goal of bringing together a group of the university mathematics teaching practitioners from across Canada that shared their experiences, views, and approaches to teaching mathematics among themselves, but also with the broader community by critically reviewing data already contained in the repository, providing feedback on the

content and functionality of the database, and contributing new content.

The workshop started on Friday, 8 February, in the afternoon. Although no formal activities were planned, the time was used for introductions and much needed socializing and informal conversations. As is well known (and thus was built into the workshop), many important discussions, exchanges of views and ideas, and building of foundations for future collaborations take place outside of the formal workshop/conference activities. The lounge in Corbett Hall, the fireplace area in particular, proved to be an ideal facilitator for this. Moreover, this informality encouraged openness and the depths of critique that were definitely embraced by the participants, who are weary of daily feeds of statements, documents, and views (mis)guided by university branding proclamations, public relations departments, and political correctness.

The workshop was built on the idea that each participant gets the opportunity to voice their opinion about any of the discussion topics and/or initiate discussion about any new related topic. This was achieved by structuring the workshop rather as an *experience* equally owned by each attendee than as a rigid schedule-driven sequence of events. In our view, it was particularly important to establish the atmosphere of collegiality, mutual respect, and trust from the very beginning of our meeting. Only in that kind of environment a group of the workshop participants as diverse as our group could have an honest in-depth discussion about the many complex issues of teaching first year math courses. For example, the group included some of the leading Canadian post-secondary educators, but also some of the young faculty that are just at the beginning of their teaching careers. We are happy to report that in the attendance there was the same number of female and male colleagues. We represented Canadian post-secondary institutions *A Mari usque ad Mare*, and occasionally shared unflattering facts about some of our institutions' practices.

The true unifying factor for the group was our shared commitment to support our students in achieving their academic goals and to, by transferring our knowledge of and passion for mathematics to our students, meet our share of responsibility in ensuring that the next generation of scholars and instructors holds high the torch of mathematics.

Here is a brief summary of the main conclusions of the workshop (for detailed notes and reports see [3]):

- Math and Stats departments must pay a lot more attention, and devote a lot more resources to their service courses
- Service courses provide unique opportunities to teach mathematics that is interesting, exciting, and stimulating, and that addresses *authentic life situations*. This is where we are forced to re-think the mathematics content, to benefit not only service courses, but all math courses.
- Service courses are mostly taught by younger instructors; often they are on limited-term contracts or hold more permanent, but non-tenure track positions.
- Instructors teaching service courses bring huge amounts of enthusiasm and energy into their courses. They are willing to experiment with a variety of pedagogical approaches and technology (plenty of evidence to this presented at the workshop).
- A successful design of a service course requires continuous communication with faculty in all departments whose students will be taking the course. Course design is an intense, time-consuming process, and those involved in the design should be given time and resources necessary to develop the course.
- Much-needed innovation in math and stats instruction happens in service courses! This is a major reason why math and stats departments across the country should pay more attention to these courses, as well as place more resources (human and money) into them.
- For the reasons mentioned above and given the stigma that comes with the attribute “service,” it might be a good idea to find a more suitable name; for instance, to rename “service courses” into “mathematics and statistics courses,” and refer to their complement as “courses for mathematics and statistics majors.”

The follow-up events are planned at the University of Alberta (3-5 May 2019) and the University of Toronto Mississauga (22-24 May 2020).

Additionally, the Canadian Math Society has provided funds for several Math Kafés, which are envisioned as semi-informal one-day meetings during which a group

of post-secondary math teaching practitioners will jointly analyze and update/ modify, as needed, the data contained in the First Year Mathematics and Statistics Courses Repository.

News from the Executive

Report of the Nominations / Elections Committee 2019 members were invited to participate in the election for the CMESG Executive. 64 of the regular members voted, with the following results:

CMESG Executive:

- **Treasurer of CMESG/GCEDM: Manon LeBlanc, 2019-2021**
- **Lisa Lunney Borden, member of the executive of CMESG/GCEDM, 2019-2021**

Congratulations to the newly elected CMESG Executive. Sincere thanks to those members who let their names stand for election. Our organization was very fortunate to have a strong list of nominees for the elections. The members of the CMESG/GCEDM and FLM Nominations & Election Committee are Richelle Marynowski (richelle.marynowski@uleth.ca) and Viktor Freiman, Chair (viktor.freiman@umoncton.ca).

des Nouvelles de l'Exécutif

Rapport du comité des nominations et élections 2019
Merci pour votre participation à notre récente élection des membres de l'exécutif du GCEDM. Nous sommes heureux d'annoncer les résultats.

Exécutif du GCEDM :

- **Trésorier: Manon LeBlanc, 2019-2021**
- **Lisa Lunney Borden, membre du comité exécutif du CMESG/GCEDM, 2019-2021**

Félicitations aux nouvelles élues sur le comité exécutif. Merci à tous ceux qui ont accepté de soumettre leurs noms pour l'élection. Notre organisation est très chanceuse d'avoir une longue liste de nominations pour les élections. Les membres du comité des nominations et des élections du CMESG/GCEDM sont Richelle Marynowski (richelle.marynowski@uleth.ca) and Viktor Freiman, président (viktor.freiman@umoncton.ca).

[1] D. Barr, A. Burazin, K. Garaschuk, V. Jungic, and M. Lovric, First Year University Mathematics Across Canada: Facts, Community and Vision, *CMS Notes* 50(4) (2018) 10-13. [2] V. Jungic and M. Lovric, Call for National Dialogue: The Present and Future of Teaching First Year Mathematics at Canadian Universities, *CMS Notes* 49(5) (2017) 10-12. [3] The First Year Mathematics and Statistics Courses Repository, <https://firstyearmath.ca/> [4] The First Year Mathematics Repository Workshop <https://www.birs.ca/events/2019/2-dav-workshops/19w2256>

CMESG Executive / L'exécutif du GCEDM

The members of the executive extend an invitation to you to contact us about any item of interest. If you have something you want to suggest, if you have a concern you wish to raise, if you want more information, etc., please let one of us know. In order to be of service to the membership, we need to be aware of what your interests are.

Les membres du Comité exécutif vous invitent à leur faire part de votre point de vue concernant n'importe quel aspect de la vie du GCEDM. Que ce soit pour transmettre suggestions ou commentaires, ou encore pour être mieux informé, n'hésitez pas à entrer en contact avec l'un d'entre nous. En nous faisant connaître vos intérêts, vous nous aidez à mieux vous servir.

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