

# Mathematics Council NEWSLETTER

The Alberta Teachers' Association

Volume 33

Number 3

May 2015

## President's Message

I'd like to share some of the books I've been reading recently that interest me professionally and personally.

The first one is *The Calculus of Friendship* (2011), by Steven Strogatz. Strogatz will be a keynote speaker at the joint conference of the Math and Science Councils in October. He has also published *The Joy of X* (2012) and is a regular contributor to the *New York Times*. In *The Calculus of Friendship*, Strogatz tells the story of his correspondence with his former high school math teacher. This correspondence continued through Strogatz's postsecondary studies as he was earning his PhD in mathematics and well into his time as a mathematics professor. In the 30-year correspondence, they challenge each other to interesting problems and end up growing close. It's a moving story. I sometimes tell people that this book is kind of like *Tuesdays with Morrie* (2002), by Mitch Albom, but for math nerds.

During my time at Alberta Assessment Consortium, our research project relied heavily on the work of Dylan Wiliam in *Embedded Formative Assessment* (2011). What I like about this book is that Wiliam provides practical examples of how teachers can build formative assessment directly into their lessons. He also includes numerous examples of math classroom ideas, which are not always found in general education books. Now that I'm back in a school, I have just picked up two new books on formative assessment by Susan Brookhart. I'm reading *Formative Classroom Walkthroughs* (2015) and *How to Give Effective Feedback to Your Students* (2008).

Finally, and probably my favourite of the bunch, is Randall Munroe's *What If?* Munroe has a degree in physics and formerly worked in robotics at NASA. He is more famously (only to me?) known for being the

creator of the webcomic found at [www.xkcd.com](http://www.xkcd.com). This comic is tagged as "a webcomic of romance, sarcasm, math, and language" and comes with the warning, "this comic occasionally contains strong language (which may be unsuitable for children), unusual humor (which may be unsuitable for adults), and advanced mathematics (which may be unsuitable for liberal-arts majors)." Despite Munroe's dubious adherence to the Oxford comma, as evidenced in the two quotes above, Munroe's xkcd webcomic is often amusing and mathematical in nature.

The xkcd webcomic has a loyal following, many of whom began reaching out to Munroe with math questions. Some of the more interesting questions are answered in *What If?*, in which Munroe provides "serious scientific answers to absurd hypothetical questions." Few books have amused me as much as this one did. He explores, mathematically and humorously, answers to questions like these:

- What would happen if you made a periodic table out of cube-shaped bricks, where each brick was made of the corresponding element?
- How many Lego bricks would it take to build a bridge capable of carrying traffic from London to New York?
- What if I jumped out of an airplane with a couple of tanks of helium and one huge, uninflated balloon? Then, while falling, I release the helium and fill the balloon. How long of a fall would I need in order for the balloon to slow me enough that I could land safely?
- When, if ever, will Facebook contain more profiles of dead people than of living ones?

Happy reading.

*John Scammell*

Please remember to renew your complimentary specialist council membership. To renew online, go to the ATA website, [www.teachers.ab.ca](http://www.teachers.ab.ca), and click on For Members, Professional Development, Specialist Councils and Specialist Council Memberships.

## From the Editor's Laptop

OK, I'll admit it. I didn't know who Steven Strogatz was when I first ran into his name in connection with this fall's conference, so I did what anyone would do and googled his name. Apparently, not only is he a mathematician and scientist, he is also a writer—for the *New York Times*. He is an opinionator. I currently have a to-do list of 52 items, but I had to take the time to read "Visualizing Vastness." It is the best explanation as to why scientific notation is important. Also, I now know that if I ever get to Ithaca, New York, I shall have to take a nice walk through the commons. To find out why, head to <http://opinionator.blogs.nytimes.com/category/me-myself-and-math/>.

But of course I couldn't stop there. I pressed the link and bam—"It's My Birthday Too, Yeah." How many people do you need in a room before the odds of two of them sharing a birthday becomes fifty-fifty? Most of us can probably solve this, but it has gained some notoriety for its position on "The Tonight Show Starring Johnny Carson" (also had to google that—it's from before my time) when Carson posed the problem but erred in trying to discover the solution. Again we get a great oratory as Strogatz explains the error and the solution. I can't wait to use this problem in my next counting principles class.

But my daughter has just wiped out and is crying, so I'd better not click on the next link. Now you know why I am looking forward to the conference. I can't wait to hear from this orator in person.

*Karen Bouwman*

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## Fall Symposium

A fantastic symposium will take place on October 22, 2015, the day before the great conference. Come and find out about "Using Robotics in Your Science and Math Classes to Engage Students While Teaching Important Concepts." For more information and to register, please go to [mathteachers.ab.ca](http://mathteachers.ab.ca).

## PEC Report

### Teachers Leading Curriculum Change: A Whole-System Approach for Creating a Great School for All

In early May 2014, about 175 teachers, school leaders and administrators from across Alberta gathered in Edmonton to participate in an international symposium on curriculum change. The symposium enabled participants to learn from the experience of others, specifically New Zealand, Finland and Australia. These countries have all embarked on major change in what students learn, how they learn and how they are assessed, and the symposium fostered understanding of the journey these countries had taken, the challenges they had faced and the outcomes of their work.

Along with the significance of equity in relation to curriculum change, several key points and discoveries emerged from this symposium. The report includes suggestions for the government to move forward in the important work related to curriculum change. You will find this report online at the ATA website ([www.teachers.ab.ca](http://www.teachers.ab.ca)).

*Carol Henderson  
Provincial Executive Council Liaison*

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## September Executive Meeting Summary

### Awards

We would love to be able to present these awards at the upcoming joint conference. Help us show your science colleagues how we recognize dedication and greatness!

#### Dr Arthur Jorgensen Chair Award

Did you have great student teachers this year? Get them to apply!

#### Math Educator of the Year

Honour your colleagues with this prestigious award. Let them know that you see their excellence.

# Conference 2015

“Geeks Unite” is the theme of our joint conference with the Science Council. It will take place in Edmonton, October 23–24, 2015, at the Fantasyland Hotel. Spots are filling up quickly, so book now to avoid disappointment.

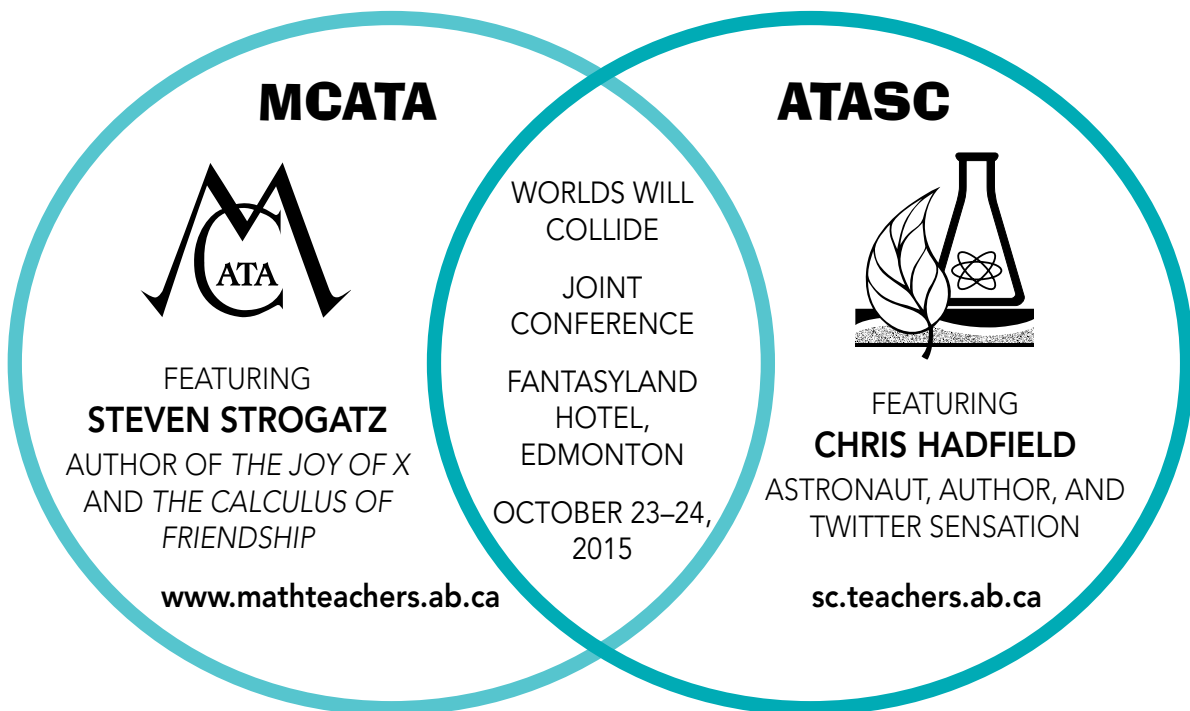
This year we have two exciting keynote speakers. One is famous to all Canadians; the other is famous in the math and science worlds. As the first Canadian commander of the International Space Station, Colonel Chris Hadfield has had the type of career one can only dream of—just as he did as a child watching the Apollo 11 moon landing. As a metaphor for pursuing our dreams, we’re often told to reach for the stars, and Chris literally did. The commitment, intelligence, sacrifice and hard work that allowed him to achieve his dreams have taught him some valuable lessons over his 20-plus-year career and have left him with some incredibly riveting stories and advice to give. Now he wants to share his experiences. In his passionate and inspiring talks, Hadfield imparts the useful and practical

lessons he’s learned throughout his remarkable career—in the fields of leadership, teamwork, collaboration, science and technology—in space and on Earth.

The second, Steven Strogatz, is a fascinating scientist and mathematician. Currently a member of the Cornell Faculty, Steven Strogatz is an applied mathematician who works in the areas of nonlinear dynamics and complex systems, often on topics inspired by the curiosities of everyday life. He loves finding math in places where you’d least expect it, then using it to illuminate life’s mysteries, big and small. For example: Why is it so hard to fall asleep a few hours before your regular bedtime? When you start chatting with a stranger on a plane, why is it so common to find that you have a mutual acquaintance? What can twisting a rubber band teach us about our DNA? An award-winning researcher, teacher and communicator, Strogatz enjoys sharing the beauty of math through his writings, public lectures, and radio and television appearances.

For more information on these speakers, visit our website at [mathteachers.ab.ca](http://mathteachers.ab.ca) or their websites: <http://chrishadfield.ca/about> (Colonel Chris Hadfield) and [www.stevenstrogatz.com/about](http://www.stevenstrogatz.com/about) (Steven Strogatz).

## “GEEKS UNITE”

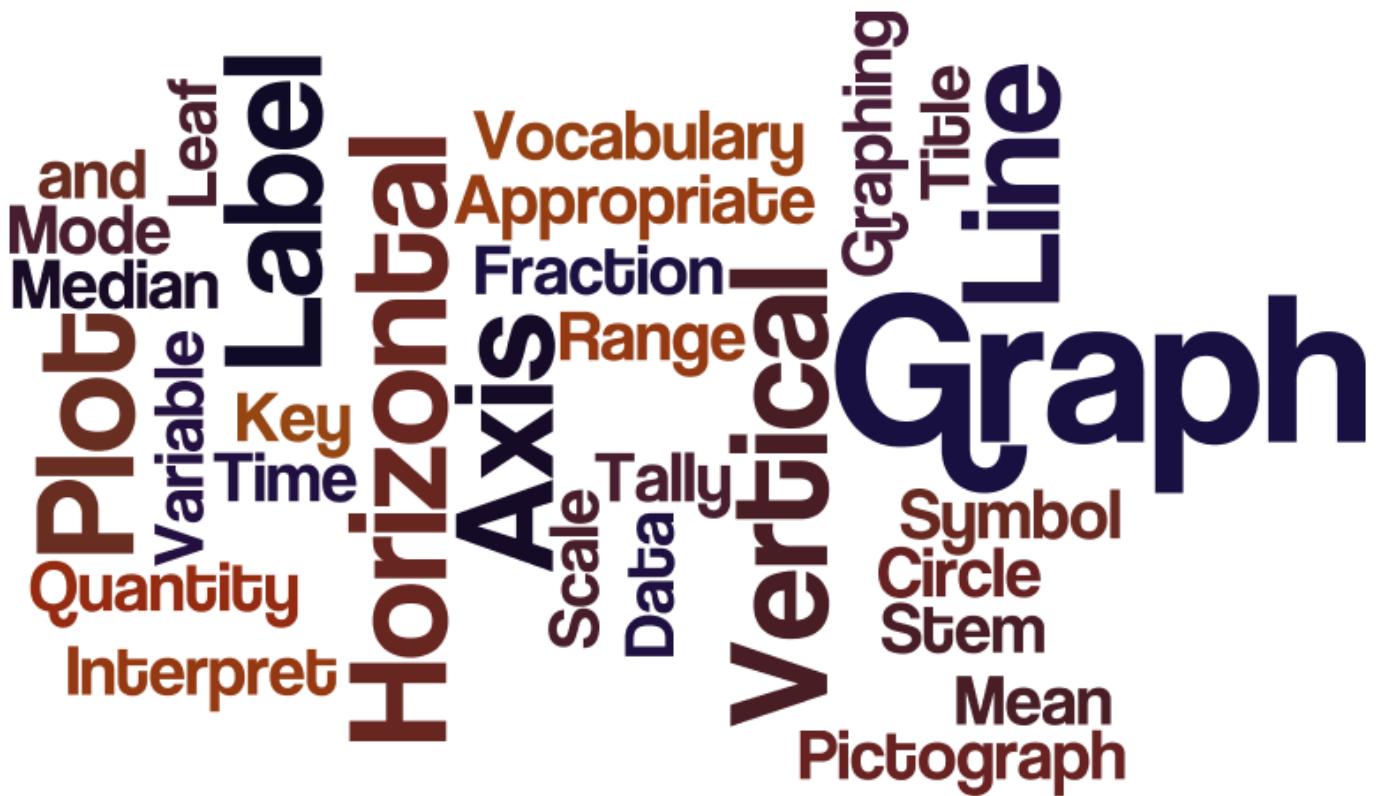


FINE PRINT: WE ANTICIPATE THAT THIS CONFERENCE WILL SELL OUT. REGISTER EARLY TO AVOID DISAPPOINTMENT. REGISTRATION LINKS ARE ON BOTH COUNCILS’ WEBSITES.

## Request for Lesson Plans

Have you created one of those amazing cross-curricular lesson plans that works so well you wish you could share it with more teachers? Maybe you haven't but have always wanted the excuse to try. Well, now you have it.

For upcoming issues of *delta-K*, we are looking for cross-curricular lesson plans for kindergarten to Grade 12 that include a significant math component. Recognizing that a lot of work goes into creating such projects, we would like to share these ready-to-go resources so that we and students can benefit from the brainpower and effort of multiple teachers. Please contact Lorelei Boschman (*delta-K* editor) at [lboschman@mhc.ab.ca](mailto:lboschman@mhc.ab.ca).



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Individual copies of this newsletter are available at a cost of \$2 per copy plus 5 per cent shipping and handling and 5 per cent GST. Please contact Distribution at Barnett House to place your order. In Edmonton, dial 780-447-9432; toll free in Alberta, dial 1-800-232-7208, ext 432.

Personal information regarding any person named in this document is for the sole purpose of professional consultation between members of the ATA.

**Joint Mathematics/Science Conference 2015**  
**October 23–24, 2015**  
**Fantasyland Hotel**  
**West Edmonton Mall, Edmonton, Alberta**

**SPEAKER PROPOSAL FORM**

Please submit your proposal by e-mail to [geeksunite2015@gmail.com](mailto:geeksunite2015@gmail.com) by July 31, 2015.

**Speaker 1 (\$200 Registration Discount)**

<b>Name</b>	
<b>Organization</b>	
<b>Address</b>	
<b>Phone</b>	
<b>Fax</b>	
<b>E-Mail</b>	

**Speaker 2 (Regular Registration Costs)**

<b>Name</b>	
<b>Organization</b>	
<b>Address</b>	
<b>Phone</b>	
<b>Fax</b>	
<b>E-Mail</b>	

**Session Information**

<b>Title</b>	
<b>Description</b> (max 300 characters)	
<b>Keywords</b>	
<b>Audience</b>	K-3 4-6 7-9 10-12 General Teacher Education
<b>Preferred Set-up</b>	Classroom (tables, chairs facing front) <input type="checkbox"/> Rounds <input type="checkbox"/> Theatre (chairs only) <input type="checkbox"/>
<b>Length</b>	Please select your session length <input type="checkbox"/> 75-minute morning session OR <input type="checkbox"/> 75-minute afternoon session
<b>Equipment</b>	Overhead <input type="checkbox"/> LCD projector <input type="checkbox"/> Internet <input type="checkbox"/> <b>(Please note: we are still in the process of negotiating technical equipment and will confirm availability at time of proposal acceptance.)</b>
<b>Capacity</b>	Room capacity needs to remain flexible at this time. If you are unable to accommodate at least 100 people at your session, please indicate maximum capacity. _____
<b>Repeats</b>	Would you be interested in repeating your session? Yes <input type="checkbox"/> No <input type="checkbox"/> please contact
<b>Information Release</b>	Are you willing to share your name and contact information as a potential speaker at other workshops and conferences? Yes <input type="checkbox"/> No <input type="checkbox"/>



## DR ARTHUR JORGENSEN CHAIR AWARD

### (MCATA Student Teacher Award)

This award is presented by the Mathematics Council of the Alberta Teachers' Association (MCATA) to encourage students enrolled in education programs in postsecondary institutions throughout Alberta to pursue and commit to mathematics education.

The award consists of

- ❑ a one-year term on the MCATA executive, with expenses paid to attend executive meetings (as per article 3.4 of the MCATA handbook);
- ❑ a one-year membership in MCATA and NCTM; and
- ❑ an invitation to attend one MCATA conference with appropriate expenses paid, subject to the approval of the executive committee,
  - (eg, substitute teacher, one night accommodation, travel and meals not included in the conference registration).

The recipient of this award must be enrolled in a degree program in a faculty of education in Alberta. The recipient will be selected on the basis of demonstrated academic excellence and a clear commitment to mathematics education in either

- specialization in mathematics at the secondary level or
  - a keen interest and desire to expand mathematics knowledge at the elementary level.
1. Applicants must apply by April 30 of the current year to Dr Arthur Jorgensen Chair Award, c/o Director of Awards and Grants ([carmenbt@telus.net](mailto:carmenbt@telus.net)).
  2. Applicants must submit a letter of reference from a faculty member in their school of education.
  3. Applicants must complete MCATA application form and address each of the questions or statements found on the application form.
  4. A selection committee of the Mathematics Council of the Alberta Teachers' Association will make the **final** choice of recipient for this award.

APPLICATION FORM for

*DR ARTHUR JORGENSEN CHAIR AWARD*

**(MCATA Student Teacher Award)**

**Please print legibly.**

Name of Applicant: \_\_\_\_\_

Address: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Home Phone: (\_\_\_\_) \_\_\_\_\_ Home E-mail Address: \_\_\_\_\_

Postsecondary Institution: \_\_\_\_\_

Description of Program of Study: \_\_\_\_\_

Current Grade Point Average: \_\_\_\_\_

Previous Degree (if applicable): \_\_\_\_\_

Are you currently a member of any mathematics organization? \_\_\_\_\_

If yes, which one? \_\_\_\_\_ Membership Number: \_\_\_\_\_

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

ADDRESS EACH OF THE FOLLOWING QUESTIONS OR STATEMENTS on additional pages.

- Why did you choose to pursue mathematics education as a major area of study?
- How would you advocate and/or promote mathematics education within your students' school community?
- Identify and address current issues and concerns in mathematics education.
- How would you foster positive attitudes toward mathematics?

OUTLINE YOUR PROFESSIONAL DEVELOPMENT GROWTH PLAN.

Deadline for application is April 30 of the current year.

# Alberta Mathematics Educator Awards

A maximum of three mathematics educator awards may be conferred annually in recognition of demonstrated leadership in mathematics education in Alberta. These awards will be presented to the recipients at the MCATA annual conference. The recipient will receive a commemorative plaque, certificate and registration at the current annual conference. Award recipient names will be published in MCATA publications.

## Selection Criteria

Awards may be conferred upon individuals in each of the following categories:

- Kindergarten–Grade 6 classroom teachers
- Grades 7–12 classroom teachers
- Those who have made exceptional contributions to professional development of teachers at the school, local, provincial or national levels *and* who have demonstrated leadership in encouraging the continuing enhancement of teaching, learning and understanding of mathematics in Alberta

No more than one award will be conferred in each category, and the conferring of awards will be contingent upon there being deserving recipients in each category.

## Nomination Procedure

Nominators must be current members of MCATA.

Nominations for the award must be forwarded to the selection committee. A complete nomination application includes the following:

- Information about nominee (Part 1 on reverse side)
- Information about nominator (Part 2 on reverse side)
- Three letters of support that reflect the criteria listed above

For more information, contact the director of awards and grants:

Carmen Wasylynuik  
Box 4086  
Barrhead, AB T7N 1A1  
[carmenbt@telus.net](mailto:carmenbt@telus.net) or 780-907-8990

Deadline for receipt of applications: **August 1 of each year**



# Alberta Mathematics Educator Award Nomination Form

## Part 1

Nominee's Name \_\_\_\_\_

Home Address \_\_\_\_\_

City and Postal Code \_\_\_\_\_

Business Address \_\_\_\_\_

City and Postal Code \_\_\_\_\_

Home Phone \_\_\_\_\_ School Phone \_\_\_\_\_

Signature of Nominee \_\_\_\_\_ Date \_\_\_\_\_

Home E-mail \_\_\_\_\_ School E-mail \_\_\_\_\_

## Part 2

Nominator's Name \_\_\_\_\_

Home Address \_\_\_\_\_

City and Postal Code \_\_\_\_\_

Business Address \_\_\_\_\_

City and Postal Code \_\_\_\_\_

MCATA Membership No \_\_\_\_\_ Member Since \_\_\_\_\_

Home Phone \_\_\_\_\_ School Phone \_\_\_\_\_

Home E-mail \_\_\_\_\_ School E-mail \_\_\_\_\_

Signature of Nominator \_\_\_\_\_ Date \_\_\_\_\_

## Part 3

A minimum of three letters of support. Please forward application and letters to the current director of grants and awards:

Carmen Wasylynuik [carmenbt@telus.net]

Box 4086

Barrhead, AB T7N 1A1

Deadline for receipt of applications: **August 1 of each year.**