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Title of Proposal

Grade 12 Calculus Teachers Workshop

Contact information

The one person and place to communicate with the applicant(s).

Name peter taylor

E-mail peter.taylor@queensu.ca

Telephone 6135332434

Fax

Institution or department to administer grant funds

Name peter taylor

Address Dept Math&Stats

Queen's University

Kingston, ON K7L 3N6

Contact

E-mail peter.taylor@queensu.ca

Telephone 6135332434

Fax

Summary

Less than 100 words

Total amount requested in this competition \$1000

We propose to hold a 2-day workshop at end of August 2019 at the Fields Institute for 20-25 Ontario teachers who will be using a set of innovative grade 12 calculus materials in their teaching in the coming year. The workshop has three objectives: to "do" some of the mathematics involved in order to give the teachers a sense of the structure and sophistication of the activities, to discuss pedagogical approaches and assessment strategies and share ideas and experiences. We hope to get major funding from Fields.

Applicants

Put any specific information on the relevant experience or expertise of an applicant in "Other".

Name(s)	peter taylor	Chris Suurtamm	Ann Arden
E-mail	peter.taylor@queensu.ca	suurtamm@uottawa.ca	Math Consultant
Position	Professor	Professor	Ottawa-Carleton DSB
Employer	Queen's University	Mathematics Education	
Address	Dept Math&Stats		
	48 University Ave.		
	Kingston, ON K7L 3N6		Nick Nielsen
			Teacher, Delphi SS
			Toronto DSB
CMS Member #	003846		
Current grants	NSERC, Math Knowledge Ne		

What you propose to do*at most 40 lines***Proposal for Grade 12 Calculus Teacher Workshop June 2019**

For many years we, along with a number of teacher colleagues, have been developing problems and activities for the high school mathematics curriculum. The main purpose of these activities is to develop thinking and analytic skills of the kind that the student will need at the college or university level, not only in mathematics, but in science and the humanities. These differ in a number of ways from the activities generally found in the current curriculum guidelines and text books. Our view is that the technical and "pedestrian" nature of the activities typically found in the mathematics classroom do not sufficiently challenge and engage the students (or the teacher!) and do only a limited job of developing the capacity to work in a clear and focused way with sophisticated structures. Our program has allowed us to post a number of problems and activities on the project website math9-12.ca, that allow and even encourage teachers to work with these problems on their own.

Currently we are working in the secondary classroom with a group of some 10-15 teachers. But to use these in a mainstream way, teachers need something more like a coherent, complete, properly supported package that they can work with over an extended period of time. We will have a draft of a resource book for the Ontario Grade 12 Calculus course available in June 2019 and plan to hold a 2-day workshop at the Fields Institute in late June for 25 teachers who will be using this resource in the 2019-20 academic year.

The workshop has three objectives.

- (1) To "do" some of the mathematics involved in the draft curriculum in order to give the teachers a sense of the structure and sophistication of the activities.
- (2) To discuss pedagogical approaches and share ideas and experiences.
- (3) To discuss assessment strategies and share ideas and experiences.

A significant feature of the workshop will be teacher presentations. Participants will be invited to choose one of the Math9-12 activities and lead a 15-20 minute discussion on its significance in student learning and how it might be used in the classroom, and how student learning might be assessed.

Budget. Teachers rarely have access to travel monies to help them attend meetings, so we want to do our best to cover their costs.

Budget

Use Tab key to navigate

Description	Revenue		
registration 25X40	1000		
Fields request	8000		
Math Knowledge network	1000		
Queen's	500		
CMS Endowment Grant requested	1000		
Total Revenue \$	11500		
	Expenses		
Travel ranging from \$300 to \$50 pp	4400		
Accommodation 25 X \$200	5000		
Meals and refreshments	2100		
Total Expenses \$	11500		

Other *Funding, partners, revenue potential, information on applicants such as publications or awards, at most 20 lines.*

Printing and RA costs not included in budget and are covered by Queen's and the Math Knowledge Network.

One of my co-leaders, Chris Suurtamm is Vice-Dean Research and Professional Development at U Ottawa and is a recognized expert of assessment strategies in secondary school. My two other co-applicants are Ann Arden, math consultant with the Ottawa-Carleton DSB and Nick Nielsen senior teacher at Delphi SS in TDSB.

Taylor, P. Teach the Mathematics of Mathematicians. *Educ. Sci.* 2018, 8, 56; doi:10.3390/educsci8020056 <http://www.mdpi.com/2227-7102/8/2/56/htm>

Recently I had the honour to be appointed a Fellow of the CMS.

Finally I apologize for the lateness of this application.
peter

Project start date

Finish date