



## Title of Proposal **Project NExTMAC (New Experiences in Teaching Mathematics Across Canada)**

### Contact information

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

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### Institution or department to administer grant funds

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Summary *Less than 100 words* Total amount requested in this competition \$ **15,000**

In most cases, grad school does not adequately prepare grad students for the world of academia that awaits them when they finish their degree. Over the next three years at the CMS summer meetings, we propose to organize a series of professional development workshops similar to the very successful Project NExT workshops in the US (sponsored by the MAA and Exxon). Each year, a select group of new or recent Mathematics faculty in Canada will be chosen to participate in these workshops. At these workshops, panel discussions, lectures, round table discussions would be organized around topics of special relevance to beginning mathematics faculty, such as, Effective strategies for teaching calculus, pre-calculus, and differential equations; Innovative approaches to liberal arts mathematics, statistics, and more advanced courses; Perspectives from pedagogical research; Balancing teaching and research; etc.

### Applicants

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

Name(s)	<b>Robert van den Hoogen</b>	<b>David Pike</b>	
E-mail	<b>rvandenh@stfx.ca</b>	<b>dapike@math.mun.ca</b>	
Position	<b>Associate Professor</b>	<b>Assistant Professor</b>	
Employer	<b>Saint Francis Xavier University</b>	<b>Memorial University of Newfoundland</b>	
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CMS member number	<b>008067</b>	<b>005625</b>	
Current Grants			

**Project NExTMAC (New Experiences in Teaching Mathematics Across Canada)**

The model for our proposed project is based on the very successful Project NExT program in the United States.

Each year we will solicit applications to participate in Project NExTMAC (New Experiences in Teaching Mathematics Across Canada). Applicants must show a keen desire to improve their teaching and professional skills. Applicants would also prove that their home institution or they, themselves are willing to help cover the costs of travel and room and board for the workshops. In a given year, it is anticipated that a group of about 20 to 25 new mathematics faculty in Canada would be chosen as Project NExTMAC fellows for a period of one year. Each group of project NExTMAC fellows will participate in two intense workshops that will take place either a day or two prior to the CMS summer meetings. Fellows will explore and discuss issues that are of special relevance to new and recent mathematics faculty. Topics include but are not limited to:

- Effective strategies for teaching calculus, pre-calculus, and differential equations;
- Innovative approaches to liberal arts mathematics, statistics, and more advanced courses;
- Involving undergraduates in mathematical research;
- Alternative methods of assessing student learning in mathematics;
- Perspectives from pedagogical research;
- Getting your research off to a good start and writing grant proposals;
- Balancing teaching and research;
- Balancing academia and family.

Not only will the Project NExTMAC fellows take part in a series of two workshops, they will also be able to communicate their concerns, and questions about teaching and other professional concerns to a listserv that will contain all of the fellows for a given year as well as a group of respected, established, mathematicians who will act as mentors and give out advice. After completing their first workshop, fellows will be asked what they would like to see happen at the next workshop. At the following workshop they will be joined by the next year's group of fellows, i.e., there will be overlapping groups at each workshop. Even after these two workshops are finished, it is hoped that these Project NExTMAC groups will continue to meet whenever they can to discuss further issues of interest to them as they progress through their careers.

It is anticipated that these sorts of professional development workshops will be very popular throughout the country. In the very recent past and into the foreseeable future, mathematics departments across the country have been and will be hiring many new inexperienced mathematics faculty. By improving the quality of our mathematics faculty at institutions across the country, we will be improving the overall well being of the mathematics community in Canada. Each faculty member who participates in this project will have access to material that they did not receive when they were in graduate school. They will be given opportunity to reflect upon their teaching methodology. They will make for themselves a support network that will allow them to voice their concerns to a group of their peers. Overall, they will learn how to become better teachers, researchers, administrators and colleagues.

Furthermore a project of this sort will bring young mathematicians of various research backgrounds to discuss topics that are non-research oriented in nature. They will have reasons other than research to attend the CMS meetings in the future.

## Budget

Description	Revenue		
<b>Imperial Oil Charitable Foundation</b>	<b>12,000</b>	<b>12,000</b>	<b>12,000</b>
<b>CMS Endowment Grant requested</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>
<b>Total Revenue \$</b>	<b>17,000</b>	<b>17,000</b>	<b>17,000</b>
Expenses			
<b>Teaching Resource Materials (Books, Pamphlets)</b>	<b>1,000</b>	<b>1,000</b>	<b>1,000</b>
<b>Travel expenses for Visiting Speakers (2 speakers)</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>
<b>Travel Subsidy for Organizers (2 organizers)</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>
<b>Administrative (Phone, Photocopy, FAX)</b>	<b>500</b>	<b>500</b>	<b>500</b>
<b>Meeting Space and Refreshments for the Workshops</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>
<b>Travel Subsidy for Participants (average of \$500 per participant)</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>
<b>Total Expenses \$</b>	<b>17,000</b>	<b>17,000</b>	<b>17,000</b>

## Other

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

Almost ten years ago the Exxon-Mobil Foundation became a major sponsor of a program for young Mathematicians called Project NExT in the United States. The word NExT in the title stood for New Experiences in Teaching. This program was set in place because it was felt at the time that something had to be done about the lack of interest in the sciences and in mathematics in particular within the middle and high-school levels. It was theorized that increasing the quality of the professors in the university system i.e, those who would be teaching the future teachers of our school system, that we may see an increase in interest in science and mathematics. Teaching a university professor to teach mathematics better, would make their students more interested in science and mathematics, and in turn, when they became teachers, they too would instill the same love and enthusiasm for the material that was showered on them.

The first group of Project NExT Fellows were chosen in 1994-95 and are otherwise known as the Red Dots. Each year since that time a group of 50 to 60 new mathematics faculty from primarily the US have been awarded a Project Next Fellowship, (1995-96 Green Dots, 1996-97 Blue Dots, 1997-98 Peach Dots, 1998-99 Silver Dots, 1999-00 Brown Dots [The colours are being recycled for 2000-01]). There has been only limited participation in Project NExT by Canadian Faculty, and so plans are now underway to establish a twin project here in Canada. The first event will draw together new mathematics faculty in Atlantic Canada at a workshop at St. Francis Xavier University in October 2001. The Imperial Oil Charitable Foundation is also being approached to assist in the funding of this project. Our goal is the creation of an enduring nation-wide project for which we are asking for your assistance.

Robert van den Hoogen (Silver Dot)

David Pike (Peach Dot)

**Project start date: January 2002**

**Project finish date: January 2005**

When project is finished what measurements will you use to judge the quality of the outcome?

**A series of qualitative and quantitative questions will be given to each participant and the results will be used to assess the effectiveness of each component of this project. Those components deemed non-essential will be dropped and replaced with alternative suggestions from the participants themselves.**