What’s New at NSERC?

Sarah Overington
Team Leader
May 27, 2015
Presentation Overview

- Discovery Grant Program Overview
- Competition results – 2015
- NSERC Updates and New Initiatives
- Questions

- How to Apply for a Discovery Grant Session
Video: Demystifying the review process for NSERC Discovery Grants

Discovery Grants Program

Objectives

- To promote and maintain a diversified base of high-quality research capability in the natural sciences and engineering (NSE) in Canadian universities.
- To foster research excellence.
- To provide a stimulating environment for research training.
Evaluation Process Overview

- Two-step process separates merit assessment from funding recommendations.
- Merit assessment uses six-point scale to evaluate:
  - Excellence of the researcher;
  - Merit of the proposal; and
  - Contributions to the training of Highly Qualified Personnel.
- Applications grouped in “bins” of comparable merit.
- Funding recommendations: similar overall ratings within an Evaluation Group (EG) receive comparable funding, with possible modulation related to the cost of research.
## Two-Step Review Process

### Merit assessment

<table>
<thead>
<tr>
<th></th>
<th>Exceptional</th>
<th>Outstanding</th>
<th>Very Strong</th>
<th>Strong</th>
<th>Moderate</th>
<th>Insufficient</th>
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</thead>
<tbody>
<tr>
<td>Excellence of researcher</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Merit of proposal</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Contribution to training of HQP</td>
<td>X</td>
<td></td>
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### Cost of research

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Normal</th>
<th>Low</th>
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</thead>
</table>

### Funding recommendation

- A (L, N, H)
- B (L, N, H)
- C (L, N, H)
- D (L, N, H)

- N
- O
- P
Roles and Responsibilities in the Evaluation Group (EG)

- **Members**
  - 5 members review each application
  - Review applications within their EG and for other EGs (joint reviews)
  - Input on policy issues related to the discipline

- **Executive Committee**
  - Co-Chairs and Group Chair
  - Ensures quality of process (consistency and equity)
  - Confirms assignment of applications including joint reviews
  - Provides recommendation to NSERC on options to balances the EG budget following review of applications
  - Group Chair acts as EG representative on COGS
    - Acts as spokesperson on policies, scientific/engineering issues
The Conference Model

- Evaluation structure consists of 12 Evaluation Groups
- Several sessions occur in parallel streams.
- Members are assigned to applications on the basis of the match between their expertise and application subject matter.
  - Members may move between sections, and participate in reviews in several EGs.
- Flexibility allows applications at the interface between Evaluation Groups to be reviewed by a combination of members with pertinent expertise from relevant groups.
Evaluation Groups

- Genes, Cells and Molecules (1501)
- Biological Systems and Functions (1502)
- Evolution and Ecology (1503)
- Chemistry (1504)
- Physics (1505)
- Geosciences (1506)
- Computer Science (1507)
- Mathematics and Statistics (1508)
- Civil, Industrial and Systems Engineering (1509)
- Electrical and Computer Engineering (1510)
- Materials and Chemical Engineering (1511)
- Mechanical Engineering (1512)
Conference Model

How It Works

- Inside an Evaluation Group, applications are assessed within Sections.
- Reviewers are drawn from the Evaluation Group’s membership as a function of the members’ expertise and the need to ensure balanced reviews.
- Members from different Evaluation Groups could participate in the review of any application, if required to ensure a comprehensive review. Referred to as Joint Reviews.
Joint Reviews

- Applications that cross boundaries of Evaluation Groups (multidisciplinary, interdisciplinary) are reviewed by a combination of members with pertinent expertise from relevant groups.

- Primary Evaluation Group: leads the review (“home” of application); Secondary Evaluation Group(s): provides expert reviewer(s).

- Reviewer(s) from secondary Evaluation Group(s): among the five reviewers assessing the application (full assessment, participation in deliberations, and vote).

- Evaluation Group suggested by applicant is usually the closest to the research area (primary EG). Reviewers from other EGs are added as necessary based on expertise.

- For any application, decision to hold JR informed by:
  - Content of NOI
  - Consultation with Evaluation Groups
  - Content of full application
Determining a Joint Review

Applicant

Suggested EG
PO
Chair
Member

Application

Decision on Joint Review

Applicant Suggested EG
Possible JR EGs
Implementation of the Conference Model

Reader

Second Internal

Conflicts?

Excellence
Outstanding
Outstanding
Outstanding

Merit
Outstanding
Very Strong

HQP
Outstanding
Outstanding
Very Strong

COR Factor:
N
N
N

Observer

Reader

First Internal

Program Officer

Chair
Discovery Accelerator Supplements

- DAS provides resources to researchers who:
  - Have highly original and innovative research programs
  - Show strong potential to become international leaders within their field

- $120,000 (typically over three years)
- Up to 125 Supplements per year
- Each Evaluation Group will receive a quota of DAS nominations to recommend
- Evaluation Group members nominate candidates. Executive Committee makes the final recommendation to NSERC
2015 RESULTS
## Conference Model in Action

### Joint Reviews for 2015 Competition

<table>
<thead>
<tr>
<th>Participating (Secondary/Visiting) Evaluation Group</th>
<th>GCM</th>
<th>BSF</th>
<th>EE</th>
<th>Chem</th>
<th>Phys</th>
<th>Geo</th>
<th>CS</th>
<th>MS</th>
<th>CISE</th>
<th>ECE</th>
<th>MCE</th>
<th>ME</th>
<th>Total</th>
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<td>GCM</td>
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<td></td>
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<td>39</td>
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</tbody>
</table>

### Notes:
- Applications involving members from more than one other EG (i.e. more than 2 EGs participating in the review) appear more than once.
- Joint reviews involving more than one member from the same EG appear only once.
- Reviews involving different streams of the same EG, without participation from other EGs, do not appear.
## Discovery Grants Overall Results – 2015 Competition

<table>
<thead>
<tr>
<th>Data</th>
<th>Success Rate</th>
<th>Average Grant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Career Researchers (ECR)</td>
<td>65%</td>
<td>$26,191</td>
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<tr>
<td>Established Researchers (ER)</td>
<td></td>
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<tr>
<td>Renewing their grant (ER-R)</td>
<td>82%</td>
<td>$35,109</td>
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<tr>
<td>Not Holding a Grant (ER-NHG)</td>
<td>38%</td>
<td>$26,756</td>
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</tbody>
</table>

1. Includes Discovery and Subatomic Physics (Individual and Team) Grants, but excludes the Subatomic Physics Projects.
2. Includes returning established unfunded applicants and experienced researchers submitting a first application.

Note: Non-official results
NSERC Discovery Grants Funding (millions of dollars)

$19 million or 6% increase

* Expected expenditures.
Discovery Grants: Total Funding, Success Rates, Number of Awards and Average Award

- **Year**: 2010-2014
- **Scale applies to Avg Grant and Success Rate (S/R)**
- **Scale applies to # Awards and Total Funding**

### Key Metrics
- **Avg (x$1K)**
- **S/R (%)**
- **Total (x$100K)**
- **# Awards**
## Statistics by University Size – 2015 Competition

<table>
<thead>
<tr>
<th>Category of Applicants</th>
<th>Data</th>
<th>University Size</th>
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<tbody>
<tr>
<td></td>
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<td>Large</td>
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<tr>
<td>Early Career Researchers</td>
<td>Number of Applications</td>
<td>325</td>
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<td></td>
<td>Number of grants</td>
<td>218</td>
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<td></td>
<td>Success Rate</td>
<td>67%</td>
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<td>Total Amount</td>
<td>$5,841,630</td>
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<td>Average Grant</td>
<td>$26,796</td>
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<td>Established Researchers - Renewing</td>
<td>Number of Applications</td>
<td>1264</td>
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<td></td>
<td>Number of grants</td>
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<td>Success Rate</td>
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<td>Total Amount</td>
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<td>Average Grant</td>
<td>$36,656</td>
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<td>Established Researchers - Not Holding a Grant</td>
<td>Number of Applications</td>
<td>671</td>
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<tr>
<td></td>
<td>Number of grants</td>
<td>295</td>
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<tr>
<td></td>
<td>Success Rate</td>
<td>44%</td>
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<tr>
<td></td>
<td>Total Amount</td>
<td>$8,256,486</td>
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<td></td>
<td>Average Grant</td>
<td>$27,988</td>
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* Updated April 29, 2015
## Discovery Accelerator Supplements
### 2015 Competition Results

<table>
<thead>
<tr>
<th>Evaluation Group</th>
<th>Awards</th>
</tr>
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<tbody>
<tr>
<td>Genes, Cells and Molecules (1501)</td>
<td>11</td>
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<tr>
<td>Biological Systems and Functions (1502)</td>
<td>11</td>
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<td>Evolution and Ecology (1503)</td>
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<td>Chemistry (1504)</td>
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<td>Physics (1505)</td>
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<td>Geosciences (1506)</td>
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<td>Computer Science (1507)</td>
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<td>Mathematics and Statistics (1508)</td>
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<td>Civil, Industrial and Systems Engineering (1509)</td>
<td>11</td>
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<td>Electrical and Computer Engineering (1510)</td>
<td>13</td>
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<td>Materials and Chemical Engineering (1511)</td>
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<td>Mechanical Engineering (1512)</td>
<td>10</td>
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<tr>
<td>Subatomic Physics (19)</td>
<td>1</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>125</strong></td>
</tr>
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</table>

### Pie Chart
- 47%: 12 years or less
- 33%: between 12-20 years
- 20%: 20 years or more
Research Tools and Instruments

- Smaller national competition with quota of applications per university based on:
  - number of NSERC-funded natural sciences and engineering researchers at institutions
    - minimum quota of two applications
- 2015 quota numbers increased (from 2014) due to increase in budget
- Researchers can participate on more than one application
- Criteria for evaluation remain the same
Research Tools and Instruments

- Smaller national competition with quota of applications per university

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<tr>
<th></th>
<th>2015</th>
<th>2014</th>
<th>2013</th>
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<tr>
<td>Budget</td>
<td>$25M</td>
<td>$19.5M</td>
<td>$25M</td>
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<td># Appl.</td>
<td>666</td>
<td>468</td>
<td>1,262</td>
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<td># Funded</td>
<td>218</td>
<td>176</td>
<td>295</td>
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<tr>
<td>Success Rate</td>
<td>33%</td>
<td>38%</td>
<td>23%</td>
</tr>
<tr>
<td>Funding Rate</td>
<td>34%</td>
<td>38%</td>
<td>24%</td>
</tr>
</tbody>
</table>
CREATE

- Increased focus on gender equity
- 102 teams supported
- $1.65M over 3 years per team
- 69 teams with industrial collaborators
- 74 teams with international collaborators
- 5 Germany-Canada collaborations
UPDATES AND NEW INITIATIVES
Discovery Development Grants

• Promote a diversified base of high-quality research in small universities
• Foster a stimulating environment for research training in small universities
• $10K/year for 2 years
Program News – Team Grants

- Starting with the 2016 competition, Team Grant applications no longer accepted through the Discovery Grants Program
- All new applications must be for individual Discovery Grants
- Existing Team Grants will continue until completion
Reorganized Website
Open Access

Tri-Agency Open Access Policy on Publications

- Researchers must make articles freely available online within 12 months of publication
- Applies to all grants awarded May 1, 2015 and onward

How to comply:

- Deposit peer-reviewed manuscript in a repository; and/or
- Submit manuscript to journal that offers open access within 12 months

For more information:

- Tri-Agency Policy FAQs and Toolbox or contact: openaccess@nserc-crsng.gc.ca
Paid Parental Leave

- Increased from 4 months to 6 months
- Starting April 1, 2015
- For graduate students and postdoctoral fellows
- Applies to scholarships and fellowships as well as those paid from supervisor grant
Research Portal

NSERC programs on Research Portal:

• NEW: Research Tools and Instruments
• Discovery Grants
• Subatomic Physics
• Canada Graduate Scholarships – Master’s
Discovery Grants Budget Allocation

- Preparing to launch a review of the budget allocation methodology
- **Goal**: ensure the program remains effective, accountable and that funds are used optimally
- Opportunity to introduce new factors to allocate funds among the 12 Evaluation Groups
- Discipline comparisons and allocations to be informed by quantitative indicators and expert judgment
Discovery Frontiers

Current theme: “New Materials for Clean Energy and Energy Efficiency”
- Initiatives capitalize on emerging opportunities in key areas
- One-time funding for a defined period
- Supports teams doing interdisciplinary, discovery research
- Next competition planned for 2017
NSERC’s Mandate

• …to promote and assist research in the natural sciences and engineering, other than the health sciences… (NSERC Act 1978)

• Clarification of NSERC guidelines
  – Updates to tri-agency document: “Selecting the Appropriate Federal Granting Agency”
  – Creation of NSERC-specific guidelines document
  – Staff validation of updated Subject Matter Eligibility tools
CGS M: Revisiting the Design

- Continue with current competition model (reviews devolved to universities), and develop a comprehensive quality monitoring scheme

- Develop an allocation formula that takes into account research excellence

- Other issues to explore: Process for single review of applications and portable awards
Postdoctoral Fellowships

- 180 offers this year, up from the 130 PDF offers made in 2014
  - NSERC will continue to fund PDFs at an increased rate as budgets permit
- The value of a PDF is now $45,000 per year
- Application pressure more manageable since one application is allowed
WISE – Draft Action Plan

- Policy Statement
- Reporting competition results by gender
- Representation of women on peer review committees
- Awareness of gender bias
- Awareness of gender-based analysis
- Policies and practices
- Consultation and engagement of stakeholders
QUESTIONS?
HOW TO PREPARE AN APPLICATION
Merit Criteria

- Excellence of the researcher
- Merit of the proposal
- Contributions to the training of Highly Qualified Personnel
Scientific or Engineering Excellence of the Researcher

- Describe up to five most significant research contributions (in application) and highlight quality & impact
- List all types of research contributions (from 2009-2015)
- Explain your role in collaborative research activities
- List all sources of support
- Give other evidence of impact
- Explain delays in research activity (See Peer Review Manual)
Excellence of Researcher

Location of Information

- **In Canadian Common CV (CCV)**
  - “Contributions” section (publications, books, patents, etc.).
  - “Recognitions” section (honors, prizes and awards, etc.).
  - “Activities” section (international collaborations, event organization, editorial activities, assessment and review activities, knowledge and technology transfers, etc.).
  - “Memberships” section (service on committees).

- **In Application**
  - “Most Significant Contributions” section (discusses most significant contributions).
  - “Additional Information on Contributions” section (discusses choice of venues, order of authors, etc.).
Merit of the Proposal

- Originality and innovation

- Significance and expected contributions to research; potential for impact
  - Must describe a program of research that will advance knowledge in the Natural Sciences and Engineering

- Clarity and scope of objectives

- Clarity and appropriateness of methodology

- Feasibility of program

- Appropriateness of budget
  - Relationship to other sources of funds must be clearly explained
Merit of the Proposal

- Write summary in plain language
- Keep in mind that two audiences read your application: expert and non-expert
- Can provide a progress report on related research
- Position the research within the field and state-of-the-art
- Clearly articulate short- and long-term objectives
- Provide a detailed methodology and realistic budget
- Consider comments/recommendations you may have received for previous applications
Merit of the Proposal

Conceptual Overlap

- Conceptual overlap occurs when the ideas in the proposal are, or appear to be, the same ideas that are supported by other sources (applicant’s other projects/programs).

- Complementary parts of an applicant’s research program can be supported by different sources.

- The onus is on the applicant to differentiate between the research program covered by the Discovery Grants proposal and other research programs/projects supported by other sources.

- Funds requested from Discovery Grants must support a program of research in the Natural Sciences and Engineering.
Merit of the Proposal

- **Do…**
  - Be original and creative, but also show you have the expertise to carry out the program
  - Have long term vision and short term plan
  - Integrate HQP into the proposal

- **Don’t…**
  - Propose an unfeasible number of objectives
  - Propose a project or a series of disconnected projects
  - Use a lot of jargon and acronyms
  - Be vague when describing methodology
  - Only reference your own publications
Merit of the Proposal

Location of Information

- **In Application**
  - Proposal (dedicated 5-page section).
  - List of References (dedicated 2-page section).
  - Budget Justification (dedicated 2-page section).
  - Relationship to Other Sources of Support Explanation (dedicated 2-page section).

- **In **CCV**
  - “Research Funding History” section to assess possible conceptual or budgetary overlaps.

- **Standalone attachment** (when applicable)
  - Relationship to Other Sources of Support
  - Attachments (Summary and budget section of applications to other agencies).
Contributions to the Training of HQP

- Quality, extent and impact of past contributions during the last six years

- Appropriateness and quality of proposed training in the Natural Sciences and Engineering.
  - Assessment based on appropriateness of plan to train particular trainees; Is the proposed level and mix of trainees (e.g. undergraduate, Master’s, or Ph.D. students; postdoctoral fellows) appropriate for the proposed program?
  - Capacity of the researcher to supervise the proposed number and type of HQP.

- Enhancement of training arising from a collaborative or interdisciplinary environment, where applicable.
Contributions to the Training of HQP

Past Contributions to Training:

- Use an asterisk to identify students who are co-authors on the listed contributions
- Explain any delays that might have affected your ability to train HQP
- Describe nature of HQP studies
  - HQP ranges from undergraduate theses and summer projects to postdoctoral levels
Contributions to the Training of HQP

Training Plan

- Describe the nature of the training (e.g., length, specific projects) in which HQP will be involved, the HQP’s contributions and pertinence to the research program proposed
- Discuss the training philosophy and the expected outcomes
- Clearly define your role in any collaborative research and planned joint HQP training
Contributions to the Training of HQP

Location of Information

Record of Training

- In **CCV**
  - “Supervisory Activities”
  - “Contributions” section: Co-authors who are trained HQP are to be identified by an asterisk (*).

- In **Application**
  - Section “Past Contributions to HQP Training” in application

Plan for Training

- In **Application** - one dedicated page
Cost of Research

- Not used by all Evaluation Groups
- Relative cost of research of the proposed research program as compared to the norms for a given discipline / field of research.
  - High, Normal, Low.
  - It is expected that most applications will be deemed to have a normal Cost of Research relative to the discipline.
- A budget that is large simply because of the program’s size, while the cost of the activities is similar to the norm in the discipline / field of research, does not translate into a High cost of research.

Location

- In Application
  - Proposal (dedicated 5-page section).
  - Budget Justification (dedicated 2-page section).
Application Process for Discovery Grants

- Instructions are available on NSERC’s Web site.

- Applicants should carefully read the instructions on how to complete the NOI and NSERC CCV.

- Applicants are encouraged to complete their CCV as soon as possible as it can be time consuming to populate its fields the first time.
Support Tools for the Discovery Grants Program

http://www.nserc-crsng.gc.ca/Professors-Professeurs/Videos-Videos/Index_eng.asp
# NSERC Contacts

<table>
<thead>
<tr>
<th>NSERC Staff</th>
<th>First Name.Last <a href="mailto:Name@nserc-crsng.gc.ca">Name@nserc-crsng.gc.ca</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Deadlines, acknowledgement of applications and results</td>
<td>Your university RGO</td>
</tr>
<tr>
<td>Your account, Grants in Aid of Research Statement of Account (Form 300)</td>
<td>Your university Business Officer (BO)</td>
</tr>
<tr>
<td>NSERC Web site</td>
<td><a href="http://www.nserc-crsng.gc.ca">www.nserc-crsng.gc.ca</a></td>
</tr>
<tr>
<td>Discovery Grants Program (including eligibility)</td>
<td>E-mail: <a href="mailto:resgrant@nserc-crsng.gc.ca">resgrant@nserc-crsng.gc.ca</a> Tel.: 613-995-5829</td>
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<tr>
<td>Use of Grant Funds</td>
<td>E-mail: <a href="mailto:awdad@nserc-crsng.gc.ca">awdad@nserc-crsng.gc.ca</a></td>
</tr>
<tr>
<td>On-line Services Helpdesk</td>
<td>E-mail: <a href="mailto:webapp@nserc-crsng.gc.ca">webapp@nserc-crsng.gc.ca</a></td>
</tr>
</tbody>
</table>