NSERC Info Session - How to prepare an Application

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June 1st, 2016
Discovery Grants Program Overview
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
  - Contributions to the training of HQP (highly qualified personnel)

- Each application assessed by 5 reviewers in conference model setting, ensuring best possible review
## Evaluation Process Overview

### Merit assessment

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

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<th></th>
<th>High</th>
<th>Normal</th>
<th>Low</th>
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### Funding recommendation

- A (L, N, H)
- B (L, N, H)
- C (L, N, H)
- D (L, N, H)
- .
- N
- O
- P

**Funding “Bins”**
Evaluation Process Overview

- Applications grouped into “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.
Roles and Responsibilities in the Evaluation Group

Members

- Key participants in the review process (5 per application)
- Act as a reviewer 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
- Balances the EG budget following review of applications
- Group Chair acts as EG representative on Committee on Discovery Research, CDR (formerly known as COGS)
  - Acts as spokesperson on policies, scientific/engineering issues
Conference Model

- Similar to a scientific conference, several sessions occur in parallel streams

- Members are assigned to various sections/applications on the basis of the match between their expertise and application subject matter
  - Members may participate in reviews in more than one EG

- Flexibility allows applications at the interface between Evaluation Groups to be reviewed by a combination of members with pertinent expertise from relevant groups

- Evaluation structure consists of 12 Evaluation 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 - Joint Reviews

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

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

- For any application, decision to hold joint review informed by:
  - Content of NOI and full application
  - Consultation with EGs
Conference Model

Reader

Second Internal

Conflicts?

Excellence
Outstanding
Outstanding

Merit
Outstanding
Very Strong

HQP
Outstanding
Outstanding

Very Strong
Very Strong

Outstanding

Very Strong

Outstanding

Very Strong

Very Strong

Very Strong

Very Strong

Very Strong

Very Strong

CoR Factor: N N N

Observer

Reader

First Internal

Program Officer

Chair
Evaluation Process Overview

Demystifying the review process for NSERC Discovery Grants
Applying to the Discovery Grants Program
Life Cycle of a Discovery Grant Application

August 1
Submission of Notification of Intent to Apply with CCV

September to October
Initial assignment to EG and contacting of external reviewers

November 1
Submission of grant application with CCV

Mid-November
Applications sent out to external reviewers

Early December
Evaluation Group members receive applications

February
Grants competition

March to April
Announcement of results
Notification of Intent to Apply for a Discovery Grant – When and What?

- **Deadline: August 1st**
  - Electronic submission only through the Research Portal
  - **Mandatory:** if not submitted by deadline, full application will not be accepted

- **Includes:**
  - Notification of Intent to Apply, listing up to five research topics in priority order
  - CCV
Notification of Intent to Apply for a Discovery Grant – Why?

- Facilitates preliminary assignment:
  - to an Evaluation Group;
  - of internal reviewers; and
  - of external reviewers.

- First indication of need for joint review
  - Informed by choice of Research Topics, keywords and proposal summary

- First review of subject matter eligibility
Notification of Intent to Apply for a Discovery Grant – Research Topics

- Important to select appropriate research topics
  - First must be from the suggested EG
  - Up to 4 others from suggested EG or other EGs

- Play an important role in the determination of a joint review with other EGs
Submitting a Discovery Grant Application

- Deadline November 1st through Research Portal
  - Check institutional internal deadline
- A full Discovery Grant submission includes:
  - Application for a Grant
  - NSERC Researcher CCV for the applicant
  - Samples of research contributions (reprints, pre-prints, thesis chapters, manuscripts, patents, technical reports, etc.)
Discovery Grants Evaluation Criteria

- Excellence of Researcher
- Merit of Proposal
- Training of Highly Qualified Personnel (HQP)
Excellence of Researcher
Definition

- Knowledge, expertise and experience

- Contributions to, and impact on, proposed and other areas of research
  - Focus on Natural Sciences and Engineering

- Assessment based on quality and impact of contributions over past six years

“Most significant contributions” section may include earlier work if they still have a significant impact (e.g., exploitation of patents)
Excellence of Researcher

- Describe up to five most significant research contributions and highlight quality & impact
- List all types of research contributions (from 2010-2016)
- 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 **CCV**
  - Recognitions (honours, prizes and awards, etc.)
  - Activities (international collaborations, event administration, editorial activities, organizational review, knowledge and technology transfers, etc.)
  - Memberships (service on committees)
  - Contributions (publications, books, patents, etc.)

- In **Application**
  - Most Significant Contributions
  - Additional Information on Contributions (discusses choice of venues, order of authors, etc.)
Merit of the Proposal
Definition

- 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
- Extent to which the scope of the proposal addresses all relevant issues
- 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 - 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
Merit of the Proposal – Overlap

- Discuss relationship to other research support:
  - For each grant currently held or applied for, clearly provide: the main objective, a brief outline of the methodology, budget details, and details on the support of HQP
  - For CIHR and SSHRC grants: must include summary and budget pages
  - For other grants with budget overlap: should include summary and budget information
Recommendations

- Be original and creative, but also show you have the expertise to carry out the program
- Avoid referencing only your own publications
- Have long term vision and short term plan
- Propose a feasible number of objectives
- Propose a program instead of a single short-term project or collection of projects
- Provide clear, precise description of methodology
- Integrate HQP into the proposal
Merit of the Proposal
Location of Information

- In **Application**
  - Proposal
  - List of References
  - Budget Justification
  - Relationship to Other Sources of Support Explanation
  - Other Support Sources – Supporting Documents (if applicable)

- In **CCV**
  - Research Funding History (to assess possible conceptual or budgetary overlaps)
Contributions to the Training of HQP

Definition

- Quality and impact of past contributions to training during the last six years (from 2010-2016)
- Appropriateness and quality of proposed training in the Natural Sciences and Engineering
  - Assessment based on appropriateness of plan to train particular HQP; 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
- Clearly define your role in any co-supervision
- Do not select “Academic Advisor”
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
Recommendations

- Describe your involvement and interaction with HQP
- Describe the nature (PhD, master’s, undergraduate), length of time (summer project vs. thesis) and type of training (course-related or thesis)
- Fully describe the nature of co-supervision
- Include present position for past HQP
- Include all levels of HQP, including undergraduates
- Make sure projects are appropriate for level of HQP proposed
Contributions to the Training of HQP
Location of Information

Record of Training:
- In **CCV**
  - Supervisory Activities
  - Publications: Co-authors who are trained HQP are to be identified by an asterisk (*)
- In **Application**
  - Past Contributions to HQP Training

Plan for Training:
- In **Application**
  - HQP Training Plan
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 and Budget Justification)
Recommendations

- Ask colleagues and/or your RGO for comments on your application
- Read other successful proposals
- Consult the Peer Review Manual
- Plan ahead and check institution deadlines
  - Give yourself time: CCV
Application Process for Discovery Grants

- Instructions are available on NSERC’s Web site

- Applicants are encouraged to carefully read the instructions on how to complete the NSERC CCV, NOI and application (including page/character limits)

- 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

- Discovery Grants Information Centre
  - Includes links for the Peer Review Manuals (DG and RTI), Merit Indicators, DAS

- Resource Videos

- Webinars on How to apply (NOI and Full Application stages)
# 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>
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<tbody>
<tr>
<td></td>
<td>Example: <a href="mailto:genevieve.coulombe@nserc-crsng.gc.ca">genevieve.coulombe@nserc-crsng.gc.ca</a></td>
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<tr>
<th>Deadlines, acknowledgement of applications and results</th>
<th>Your university RGO</th>
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<tr>
<th>Your account, Grants in Aid of Research Statement of Account (Form 300)</th>
<th>Your university Business Officer (BO)</th>
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<th>Discovery Grants Program (including eligibility)</th>
<th>E-mail: <a href="mailto:resgrant@nserc-crsng.gc.ca">resgrant@nserc-crsng.gc.ca</a></th>
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<tr>
<td></td>
<td>Tel.: 613-995-5829</td>
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<th>Use of Grant Funds</th>
<th>E-mail: <a href="mailto:awdad@nserc-crsng.gc.ca">awdad@nserc-crsng.gc.ca</a></th>
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<th>On-line Services Helpdesk</th>
<th>E-mail: <a href="mailto:webapp@nserc-crsng.gc.ca">webapp@nserc-crsng.gc.ca</a></th>
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• Questions?
## Merit Indicators for Discovery Grant

### 6.13. DISCOVERY GRANTS MERIT INDICATORS

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<th>Excellence of the Researcher</th>
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<th>Very Strong</th>
<th>Strong</th>
<th>Moderate</th>
<th>Insufficient</th>
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<tr>
<td>Acknowledged as a leader who has continued to make, over the last six years, influential accomplishments at the highest level of quality, impact and/or importance to a broad community.</td>
<td>The accomplishments presented in the application were deemed to be far superior in quality, impact and/or importance to a broad community.</td>
<td>The accomplishments presented in the application were deemed to be superior in quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be very strong in quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be strong in quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be moderate in quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be insufficient in quality, impact and/or importance.</td>
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| Merit of the Proposal | Proposed research program is clearly presented, is extremely original and innovative and is likely to have impact by leading to groundbreaking advances in the area and/or leading to a technology or policy that addresses socio-economic or environmental needs. Long-term vision and short-term objectives are clearly defined. The methodology is clearly defined and appropriate. The budget clearly demonstrates how the research activities to be supported are distinct from and complement those funded by other sources. | Proposed research program is clearly presented, is highly original and innovative and is likely to have impact by contributing to groundbreaking advances in the area, and/or leading to a technology or policy that addresses socio-economic or environmental needs. Long-term goals are clearly defined and short-term objectives are well planned. The methodology is clearly described and appropriate. The budget clearly demonstrates how the research activities to be supported are distinct from and complement those funded by other sources. | Proposed research program is clearly presented, is original and innovative and is likely to have impact by leading to advancements and/or addressing socio-economic or environmental needs. Long-term goals are defined and short-term objectives are clearly described. The methodology is clearly described and appropriate. The budget demonstrates how the research activities to be supported are distinct from and complement those funded by other sources. | Proposed research program is clearly presented, has original and innovative aspects and may have impact and/or address socio-economic or environmental needs. Long-term and short-term objectives are described. The methodology is partially described and/or appropriate. The budget demonstrates how the research activities to be supported are distinct from and complement those funded by other sources. | Proposed research program, as presented lacks clarity, and/or is of limited originality and innovation. Objectives are not clearly described and/or likely not attainable. Methodology is not clearly described and/or appropriate. The budget does not clearly demonstrate how the research activities to be supported are distinct from and complement those funded by other sources. |

| Training of HQP | Training record is at the highest level, with HQP contributing to top quality research. Most HQP move to positions that require highly desired skills, obtained through training received. Research plans for trainees are appropriate and clearly defined. HQP success highly likely. | Training record is superior to other applicants, with HQP contributing to high-quality research. Most HQP move to positions that require highly desired skills, obtained through training received. Research plans for trainees are appropriate and clearly defined. HQP success highly likely. | Training record compares favourably with other applicants. HQP generally move on to positions that require desired skills, obtained through training received. Research plans for trainees are appropriate and clearly defined. HQP success is likely. | Training record is acceptable but may be modest relative to other applicants. Some HQP move on to programs or positions that require desired skills, obtained through training received. Plans for trainees are described and should contribute to HQP success. | Training record is below an acceptable level relative to other applicants. HQP do not, in general, move on to positions that require skills obtained through training received. Plans for trainees are not appropriate or are not described with enough information to predict likelihood of HQP success. |

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1. The Discovery Grants Merit Indicators should be used in conjunction with the Peer Review Manual (Chapter 6) which outlines how reviewers arrive at a rating.

Discovery Accelerator Supplements (DAS)

- 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 EG will receive a quota of DAS nominations to recommend
- EG members nominate candidates and Executive Committee makes the final recommendation to NSERC

DAS Evaluation Grid

- To what degree does the Discovery Grant application satisfy the DAS program description and meet the objectives?

<table>
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<tr>
<th>1-Very Well</th>
<th>2-Well</th>
<th>3-Some Degree</th>
<th>4-No Support</th>
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<tr>
<td>The potential recipient has a superior research program that is highly rated in terms of originality and innovation and shows strong potential to become an international leader within their field. OR The potential recipient has a superior research program that is original and innovative and shows strong potential to become an international leader within their field.</td>
<td>The potential recipient has a superior research program that is original and innovative and shows potential to become an international leader within their field.</td>
<td>The potential recipient does not satisfy the criteria of the DAS program description nor does she/he meet the objective. The possibility to capitalize on an opportunity is unclear.</td>
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<tr>
<td>AND the potential recipient has an established research program and can capitalize on an opportunity.</td>
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<tr>
<td>AND the DAS would provide substantial and timely additional resources to accelerate progress and maximize the impact of superior research programs.</td>
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Federal Research Funding

Clear separation between the government actors that fund research and those that perform research.

Three main granting agencies in Canada (collectively known as Tri-Agency or Tri-Council):

- **Natural Sciences and Engineering Research Council (NSERC)**
  Supports research in natural sciences and engineering

- **Canadian Institutes of Health Research (CIHR)**
  Supports research in health sciences

- **Social Sciences and Humanities Research Council (SSHRC)**
  Supports research in social sciences and humanities
NSERC’s mandate is to promote and assist research in the natural sciences and engineering, other than health. The intended objectives of the research program must be, primarily, to advance knowledge in the natural sciences or in engineering.

- Selecting the Appropriate Federal Granting Agency

- Addendum to the guidelines for the eligibility of applications related to health

- NSERC Discovery Grants Process for Decisions on Mandate Eligibility
Contribution to the Training of Highly Qualified Personnel Criterion

- Frequently Asked Questions document
Delays in research and dissemination of research results

- Applicants are asked to explain and give dates for any significant delays in the research activity or in the dissemination of research results (e.g., parental leave, bereavement, single parent situations, illness, extraordinary administrative duties).

- NSERC recognizes that research productivity and contributions to the training of HQP may also be disrupted due to delays incurred either by the applicant or by HQP. In these cases the applicant’s productivity would be assessed over the active period (i.e., excluding the defined period).

Section 4.4.5.4 of the Peer Review Manual
Adjunct and emeritus professors

- Applications from adjunct and emeritus professors are evaluated using the same selection criteria, scale, indicators and time frame (past six years) as all other applicants.

- Specifically in the case of adjunct professors with a position in industry or government, NSERC will award funds only for the direct support of students (salaries or stipends and student travel costs).

Section 4.4.5.5 of the Peer Review Manual