Discovery Grant 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; and
  - Contributions to the training of HQP.
- 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.

Demystifying the review process for NSERC Discovery Grants

www.nserc-crsng.gc.ca/Professors-Professeurs/Videos-Videos/DG_eng.asp
## Two-Step Review Process

### Merit assessment

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

<table>
<thead>
<tr>
<th>Cost of research</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)
Roles and Responsibilities in the EG

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
- 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 Egs.
- Similar to a scientific conference, several sessions occur in parallel streams.
- Members are assigned to sections/applications on the basis of the match between their expertise and application subject matter.
  - Members may participate in reviews in several EGs.
- Flexibility allows applications at the interface between EGs 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)

List of Research Topics by EG

www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DGPList-PSDListe_eng.asp
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.
  - 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).
How Does the Conference Model Work?

**Genes, Cells and Molecules EG**
- Group Chair
- ~55 members
- 5 Section Chairs

**Biological Systems and Functions**
- Group Chair
- ~60 members
- 5 Section Chairs

**Evolution and Ecology EG**
- Group Chair
- ~25 members
- 3 Section Chairs

- Molecular Neuroscience
- Cell Physiology
- Genetics
- Immunology
- Biochemistry
- Microbiology
- Plant Physiology
- Food Science
- Animal Physiology
- Cognitive Science
- Kinesiology
- Behavioural Neuroscience
- Animal Production
- Ecosystems
- Evolution
- Taxonomy
- Populations
- Evolution of Behaviour
- Animal Production
- Kinesiology
- Taxonomy
### Implementation of the Conference Model

**Deliberations**

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<th>Merit</th>
<th>HQP</th>
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**COR Factor:**

<table>
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<th>Reader</th>
<th>Observer</th>
<th>Reader</th>
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<tbody>
<tr>
<td>N</td>
<td>N</td>
<td>N</td>
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</table>

Conflicts? 

Program Officer 

Chair 

First Internal 

Second Internal 

Observer
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.
  - JRIs can involve one or more visiting reviewers from one or more different EGs.
  - As for all other applications, normally 5 reviewers per applications with equal vote, regardless of number of EGs participating.

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

Applicant

Suggested EG

PO  Chair  Member

JR EG(s)

PO  Chair  Member

Applicant

Suggested EG

PO  Chair  Member

NoI

Suggested EG

Research Topics

Keywords

Proposal Summary

Application

Decision on Joint Review

Possible JR EGs
Life Cycle of a Discovery Grant Application

August 1
Submission of Notification of Intent to Apply with CCVs

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

November 1
Submission of grant application with CCVs

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, preprints, thesis chapters, manuscripts, patents, technical reports, etc.)
Evaluation of Discovery Grant Applications
Discovery Grants Evaluation Criteria

- Scientific or Engineering Excellence of the Researcher
- Merit of the Proposal
- Training of Highly Qualified Personnel (HQP)
Excellence of Researcher

- Knowledge, expertise and experience.
- Contributions to, and impact on, proposed and other areas of research.
  - Focus on Natural Sciences and Engineering
- Assessment based on the quality and impact of contributions.
- Assessment based on achievements demonstrated 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 the Researcher: advice

- Describe up to five most significant research contributions (now 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 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: advice

- 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: Advice on Overlap

Discuss relationships 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.

- Must include summary and budget pages for CIHR and SSHRC grants currently held or applied for.

- Should include summary and budget information for other grants with budget overlap.
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.

- It is **not sufficient** to simply state that there is no overlap.
Advice from EG members

- **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 *(2009-2015)*

- Appropriateness and quality of proposed training plan 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: advice

Past Contributions to Training:

- Use an asterisk to identify students who are co-authors on the listed contributions
- Explain your role in any co-supervision
- 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
- Do not select “Academic Advisor”
Contributions to the Training of HQP: advice

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
  - The plan should describe in detail the activities in which HQP will participate, the skills they will acquire, the appropriateness of the activities based on HQP type (undergraduate, masters, etc) and impact of the training.

- Discuss the training philosophy and the expected outcomes

- Clearly define your role in any collaborative research and planned joint HQP training
Advice from EG Members

Do…
- 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

Don’t…
- Just list numbers
- Have name withheld on all entries
- Have a blanket statement, be specific
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).
# Merit Indicators for Discovery Grant Applications

6.13. **DISCOVERY GRANTS MERIT INDICATORS**

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<thead>
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<th>Exceptional</th>
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<tbody>
<tr>
<td>Excellence of the Researcher</td>
<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 of superior quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be solid in their quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be of reasonable quality, impact and/or importance.</td>
<td>The accomplishments presented in the application were deemed to be below an acceptable level of quality, impact and/or importance.</td>
</tr>
<tr>
<td>Merit of the Proposal</td>
<td>Proposed research program is clearly presented, is highly 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.</td>
<td>Proposed research program is clearly presented, is highly 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 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.</td>
<td>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 planned. 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.</td>
<td>Proposed research program is clearly presented, is original and innovative and may have impact and/or address socio-economic or environmental needs. Long-term goals and short-term objectives are clearly defined. The methodology is described and appropriate. The budget demonstrates how the research activities to be supported are distinct from and complement those funded by other sources.</td>
<td>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.</td>
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</tr>
<tr>
<td>Training of HQP</td>
<td>Training record is at the highest level, with HQP contributing to top quality research. Most HQP move on to positions that require highly desired skills, obtained through training received. Research plans for trainees are appropriate and clearly defined. HQP success highly likely.</td>
<td>Training record is superior to other applicants, with HQP contributing to high-quality research. Most HQP move on to positions that require highly desired skills, obtained through training received. Research plans for trainees are appropriate and clearly defined. HQP success highly likely.</td>
<td>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 described. HQP success is likely.</td>
<td>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.</td>
<td>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.</td>
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1The Discovery Grants Merit Indicators should be used in conjunction with the Peer Review Manual (Chapter 6) which outlines how reviewers arrive at a rating.

(See the Peer Review Manual)
Reminders

- Consult the Peer Review Manual

- Read all instructions carefully

- Ensure completeness of application

- Ask colleagues and/or your RGO for comments on your application

- Ask someone not directly in your field of research

- Read other successful proposals

- Plan ahead and check institution deadlines
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

Submit an NSERC individual Discovery Grant application through the Research Portal

This set of videos has been created to assist researchers to submit an NSERC individual Discovery Grants application through the Research Portal. Each video represents a step in the application process and complements the Instructions.

Putting Your Best Foot Forward: How to Prepare for a Successful NSERC Site Visit

NSERC’s site visit process is a critical part of the peer review process for large grants. This video provides an overview of “best practices” NSERC-funded researchers, their industrial partners, and top university and college administrators use to prepare for an effective site visit.

Tips on applying for an NSERC Discovery Grant

This video provides practical tips to help applicants write a better proposal for an NSERC Discovery Grant. It features interviews with members of the Evaluation Groups that review applications.
# 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>
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<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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