

NSERC Discovery Info Session

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science | YORK U



My NSERC History

- Successful Discovery grants in 2001/2, 2006/7, 2011/12, 2016/17
- Member, Grant Evaluation Group, 2021/22, 2022/23, 2023/24
 - *Genes, Cells and Molecules* (1501)
 - 3-year funded extension to Discovery Grant while on the panel
- One-year COVID extension
- Next grant application: 2025/26

What is an Evaluation Group? (EG)

- Example: 1501
 - Group chair
 - 5 section chairs
 - 64 group members
 - Suggest an EG when you apply
 - NSERC will decide appropriate EG
- 1501 - Genes, Cells and Molecules
 - 1502 - Biological Systems and Functions
 - 1503 - Evolution and Ecology
 - 1504 - Chemistry
 - 1505 - Physics
 - 1506 - Geosciences
 - 1507 - Computer Science
 - 1508 - Mathematics and Statistics
 - 1509 - Civil, Industrial and Systems Engineering
 - 1510 - Electrical and Computer Engineering
 - 1511 - Materials and Chemical Engineering
 - 1512 - Mechanical Engineering

Who will read your grant?

- 5 reviewers per grant (R1 – R5)
 - Most grants I read are not in my specialist subject area
- 30-35 grants per EG member
- We spend 3-4 hours (at least) per R1 & R2
2-3 hours (at least) per R3, 4 & 5
- Reading between mid-Dec to mid-Feb
- We have to read fast!

Writing style tips

- Make it easy for us!
 - Organization: Headings, boldface, underlining
 - Straightforward language, few abbreviations
 - Written for non-specialist
 - Use simple diagrams of models, experimental designs

- Get comments from several other readers before submitting.

How are grants evaluated?

- 3 equally weighted criteria
 - Excellence of the Researcher (EOR)
 - Merit of the Proposal (MOP)
 - Training of Highly Qualified Personnel (HQP)

- 6 levels of merit assigned to each criterion
 - Exceptional
 - Outstanding
 - Very strong
 - Strong
 - Moderate
 - Insufficient

“The Grid”

Available on NSERC Discovery website

DISCOVERY GRANTS MERIT INDICATORS

The Merit Indicators should be used in conjunction with the Peer Review Manual, which outlines how reviewers arrive at a rating.						
	EXCEPTIONAL	OUTSTANDING	VERY STRONG	STRONG	MODERATE	INSUFFICIENT
Excellence of the Researcher	Acknowledged as a leader in terms of research excellence, accomplishments, and service.	Research excellence, accomplishments, and service are far superior to others.	Research excellence, accomplishments, and service are superior to others.	Research excellence, accomplishments, and service are significant .	Research excellence, accomplishments, and service are reasonable .	Research excellence, accomplishments, and service are below an acceptable level .
	Contributions presented in the application are of the highest level of quality .	Contributions presented in the application are of high quality .	Contributions presented in the application are above average in quality .	Contributions presented in the application are of good quality.	Contributions presented in the application are of reasonable quality.	Contributions presented in the application are limited in quality.
Merit of the Proposal	Impact and importance of the work is clearly evident and groundbreaking .	Impact and importance of the work is clearly evident and influential .	Impact and importance of the work is clearly evident .	Impact and importance of the work is evident .	Impact and importance of the work is somewhat evident .	Impact and importance of the work is not clearly evident .
	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.	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.	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.	Proposed research program is clearly presented, is original and innovative and is likely to have impact and/or address socio-economic or environmental needs.	Proposed research program is clearly presented, has original and innovative aspects and may have impact and/or address socio-economic or environmental needs.	Proposed research program, as presented lacks clarity , and/or is of limited originality and innovation .
	Long-term vision and short-term objectives are clearly defined.	Long-term goals are clearly defined and short-term objectives are well planned.	Long-term goals are defined and short-term objectives are planned.	Long-term goals and short-term objectives are clearly described.	Long-term and short-term objectives are described.	Objectives are not clearly described and/or likely not attainable.
	The methodology is clearly defined and appropriate .	The methodology is clearly described and appropriate .		The methodology is described and appropriate .	The methodology is partially described and/or appropriate .	The methodology is not clearly described and/or appropriate .
	The application clearly demonstrates how the research activities to be supported are distinct from those funded (or applied for) by other sources.					The application does not clearly demonstrate how the research activities to be supported are distinct from those funded (or applied for) by other sources or does not clearly demonstrate a program of research in the NSE.
Training of Highly Qualified Personnel	Past training is at the highest level in terms of the research training environment provided and HQP contributions to research.	Past training is far superior to other applicants in terms of research training environment provided and HQP contributions to research.	Past training is superior to other applicants in terms of the research training environment provided and HQP contributions to research.	Past training compares favourably with other applicants in terms of the research training environment provided and HQP contributions to research.	Past training is modest relative to other applicants in terms of the research training environment provided and HQP contributions to research.	Past training is below an acceptable level in terms of the research training environment provided and HQP contributions to research.
	Most HQP move on to highly impactful positions that require skills gained through the training received.	Most HQP move on to impactful positions that require skills gained through the training received.	HQP generally move on to impactful positions that require skills gained through the training received.	HQP generally move on to positions that require skills gained through the training received.	Some HQP move on to positions that require skills gained through the training received.	HQP rarely move on to positions that require skills gained through the training received.
	Training philosophy and research training plans are of the highest quality: highly appropriate, clearly defined and expected to produce top quality results in terms of the overall approach and specific projects for HQP.	Training philosophy and research training plans are far superior: highly appropriate, clearly defined and expected to produce high quality results in terms of the overall approach and specific projects for HQP.	Training philosophy and research training plans are superior: highly appropriate, clearly defined and expected to produce quality results in terms of the overall approach and specific projects for HQP.	Training philosophy and research training plans are appropriate and clearly defined in terms of the overall approach and specific projects for HQP.	Training philosophy and research training plans are partially appropriate and partially defined in terms of the overall approach and specific projects for HQP.	Training philosophy and research training plans are not appropriate and not clearly defined in terms of the overall approach and specific projects for HQP.
	Challenges related to equity, diversity and inclusion specific to the institution and field of research are clearly described .		Challenges related to equity, diversity and inclusion specific to the institution and field of research are described .	Challenges related to equity, diversity and inclusion specific to the institution and/or field of research are described .	Challenges related to equity, diversity and inclusion specific to the institution and/or field of research are partially described .	Challenges related to equity, diversity and inclusion specific to the institution and/or field of research are inaccurate or not described .
	Specific actions to support the recruitment of a diverse group of HQP and an inclusive research training environment are clearly defined .		Specific actions to support the recruitment of a diverse group of HQP and an inclusive research training environment are defined .	Specific actions to support the recruitment of a diverse group of HQP and/or an inclusive research training environment are defined .	Specific actions to support the recruitment of a diverse group of HQP and/or an inclusive research training environment are partially defined .	Specific actions to support the recruitment of a diverse group of HQP and/or an inclusive research training environment are not appropriate or not defined .

“The Grid is Absolute”

- Evaluation of grants must refer to language of the grid
- Funding history, career stage, institution do not modify the grid
- “Not comparative”
 - But some language asks for comparisons
 - “above average, far superior, compares favorably with other applicants”

How are scores assigned to grants?

- “Conference Model” of grant evaluation
 - Microsoft Teams for conferences (one week in Feb)
 - 5 readers plus a chair plus an administrator in a Teams room

- Each grant gets 15 minutes
- Order of deliberations:
 - 1) Preliminary scores from each reviewer, score each of 3 criteria
 - 2) Reader 1: 4 min
 - 3) Reader 2: 2 min
 - 4) Readers 3, 4 & 5: 1.5 min each
 - 5) Discussion: 2-5 min
 - 6) Final anonymous scores
 - The median (not the mean) is calculated for each criterion

How is funding determined?

- Not decided by Evaluation Group
- Applications with the same rating are grouped in a funding bin
 - Combination of the three criteria determines bin
 - Any “insufficient” = No funding
 - Scores above “moderate” expected for established researcher to get funded
- Amount awarded is never more than the requested amount even if bin amount is higher
 - Bin amounts are usually lower than requested amount
 - Ask for more than you really need!

Notice of Intent to Apply (NOI)

- Not evaluated. Has 2 uses:
 - 1) Eligibility
 - 2) External reviewers
- Exact experimental plan not as important as keywords and phrases, subject matter
- Eligibility: Natural Sciences & Engineering (NSE)
 - Subject matter must be at least 50% NSE
- External reviewers
 - Evaluate only the proposal, not other parts of application

NSERC Subject Matter Eligibility

- Animal health and veterinary medicine research programs are eligible.
- Research seeking to further our understanding of fundamental processes of the healthy or normal state in humans is eligible.
- Research with disease-related goals including work on the etiology, diagnosis, treatment or prevention of physical or mental disease, abnormality or dysfunction in humans is normally not eligible.
- NSE research whose primary purpose is the development of medical devices and devices for treating a disease or physical condition is eligible, unless it is at the validation stage.

Excellence of Researcher

- Knowledge, expertise, and experience of the researcher in the NSE
 - Service is important
 - Journal editorships, grant review panels, conference organization (beyond normal departmental service)

- Quality and impact of contributions to the proposed research and/or other areas of research in the NSE
 - Contributions from last 6 years = Jan 2018 to present

- Importance of contributions to, and use by, other research and end-users

What are “quality” and “impact”?

- We ignore numbers: number of publications, journal impact factors, number of citations, H-numbers, etc.
 - We can use numbers of contributions but must add quality assessment
 - Predatory journals: We can downgrade; applicant should explain venues for publication

- Publications/contributions must be NSE
 - If funded by CIHR etc: Tell us what the NSE content is

What are “quality” and “impact”?

- Use your “Most Important Contributions” text to explain this.
 - “It’s the applicant’s responsibility to describe impact”
 - I don’t know what it is – you tell me!
- Use the word “impact” as often as possible!
 - Publications used by other labs?
 - Methods/reagents used by others?
 - Concepts and new paradigms?
 - Patents/Applications?
 - HQP?
 - Public outreach?
 - Policy/government consultations?

Merit of the Proposal

- Originality and innovation
- Significance and expected contributions to NSE research
- Clarity and scope of objectives
 - Overall hypothesis to test and about three aims for research
- Clarity and appropriateness of methodology
- Feasibility
 - Alternative approaches
- Equity, diversity and inclusion considerations where relevant.
 - Female as well as male mice?
- Appropriateness of, and justification for, the budget
- Demonstration that the DG proposal is distinct conceptually from research supported (or submitted for support) through CIHR and/or SSHRC

Budget

- Don't sweat the details!
- Only discussed if it affects feasibility
 - We don't spend time analysing breakdown of costs
- Avoid overlap with other tri-council funding
- Is the program good for HQP training?
 - List your HQP and their roles in the budget

Training of Highly Qualified Personnel

- Quality and impact of past training
 - Past can include CIHR etc, future is only NSE
- Training environment
 - Equipment, collaborations, career development
- HQP awards and research contributions
- Outcomes and skills gained by HQP
- Research training plan for individual HQP
 - Quality, suitability and clarity of the planned training
 - Include in research proposal or budget
- Training philosophy
 - Mentorship approach

Training of Highly Qualified Personnel

- EDI: Challenges or barriers to inclusion and advancement of under-represented groups
 - Planned approach to promote participation of a diverse group of HQP
- Do not underestimate importance of this in your HQP statement!
- Educate yourself, quote literature on best practices.
- Go beyond recruitment, consider retention and career development.
- If missing: not automatic insufficient, but downgraded.

Tips for HQP Section

- Include all levels of HQP
 - Undergrads, grads, post-docs, RA, technicians
- Do they publish papers or present at conferences?
 - Put asterisks on HQP in author lists
 - HQP presentations: should be in application, and researcher presentations in CCV
- How long do they take to finish?
- Where do they go after?

Early Career Researchers (ECR)

- Early career researchers = 5 years past first appointment
- Leaves: credited at TWICE the actual time taken
- HQP for ECR: Moderate if they have a good plan but no past training.
- All other evaluation is independent of career stage
- Some adjustments made to funding bins

Automatic Insufficient = No Funding

- 1) EOR: All contributions are in Health or SSH – no NSE
 - Assess only NSE contributions
- 2) MOP: Not a program, but a short-term project or collection of disconnected projects
- 3) MOP: Program not in NSE. Assess only NSE portion – Is it a program?
- 4) MOP: Overlap with CIHR/SSHRC proposals/grants, either ideas or expenditures
- 5) HQP: No training plan, or plan not in NSE
- 6) HQP: No training record for established researcher (ECR: not insufficient, moderate if there is a good training plan)

DO NOT DO THIS:

- Refer to previous NSERC grant as if we should know about it.
 - We don't see anything except your current application.
 - No one checks to see if you did what you planned to do.

- Refer to lab websites or other external links.
 - No outside information allowed.

- Expect us to read your papers.
 - We don't have time.

- List failed grant applications.
- Beg for funding because you don't have any now.

Results and Feedback

- Message from the Evaluation Group “MEG”
 - Only for Insufficient, Moderate and Strong
 - Minimal comments