

# ***HOW TO SUCCEED IN THE NSERC DISCOVERY GRANT COMPETITION***

***Rob Beiko, Faculty of Computer Science***

***Contributions from:***

- ***Evangelos Miliotis***
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- ***Stavros Konstantinidis***

***Dalhousie University***

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# The Plan

- Brief introduction (this)
- Introduction to the Office of Research Services
- My presentation
- Advice from Paola Marignani (Medicine), Evangelos Milios (CS)
- Q&A



This session is being recorded



*Dalhousie University is located in Mi'kma'ki,  
the ancestral and unceded territory of the  
Mi'kmaq. We are all Treaty people.*



*Dalhousie acknowledges the histories, contributions, and legacies of the African Nova Scotia people and communities who have been here for over 400 years.*

# Disclaimer

- I have never sat on a DG grant panel
- I have, however, participated in grant panels for other organizations
- And had reasonable success with NSERC and other agencies (and some instructive failures too)

# **Office of Research Services**

# How to succeed in 15 words

- Start early
- Follow the review criteria
- Seek internal review
- Convince the panel to fund you

# What you need to start **NOW** (if you haven't already)

- **Create** your application in the NSERC On-Line portal
- Create / update your Canadian Common CV
- Start developing an **outline** of your proposal
- Contact your Chair / ADR for specific timelines

# The big picture

- NSERC DG supports a *program* of research, not a self-contained *project*, in the natural sciences and / or engineering
- Your proposal needs to contain exceptional science, but you are free to pursue other research directions if funded. It is the **least constrained funding** most people have
- Three evaluation criteria:
  - Excellence of the researcher
  - Merit of the Proposal
  - Contributions to Training of HQP\*

# Equity, Diversity, and Inclusion

[https://www.nserc-crsng.gc.ca/NSERC-CRSNG/EDI-EDI/index\\_eng.asp](https://www.nserc-crsng.gc.ca/NSERC-CRSNG/EDI-EDI/index_eng.asp)

“The agencies are committed to:

Supporting equitable access to funding opportunities for all researchers and trainees

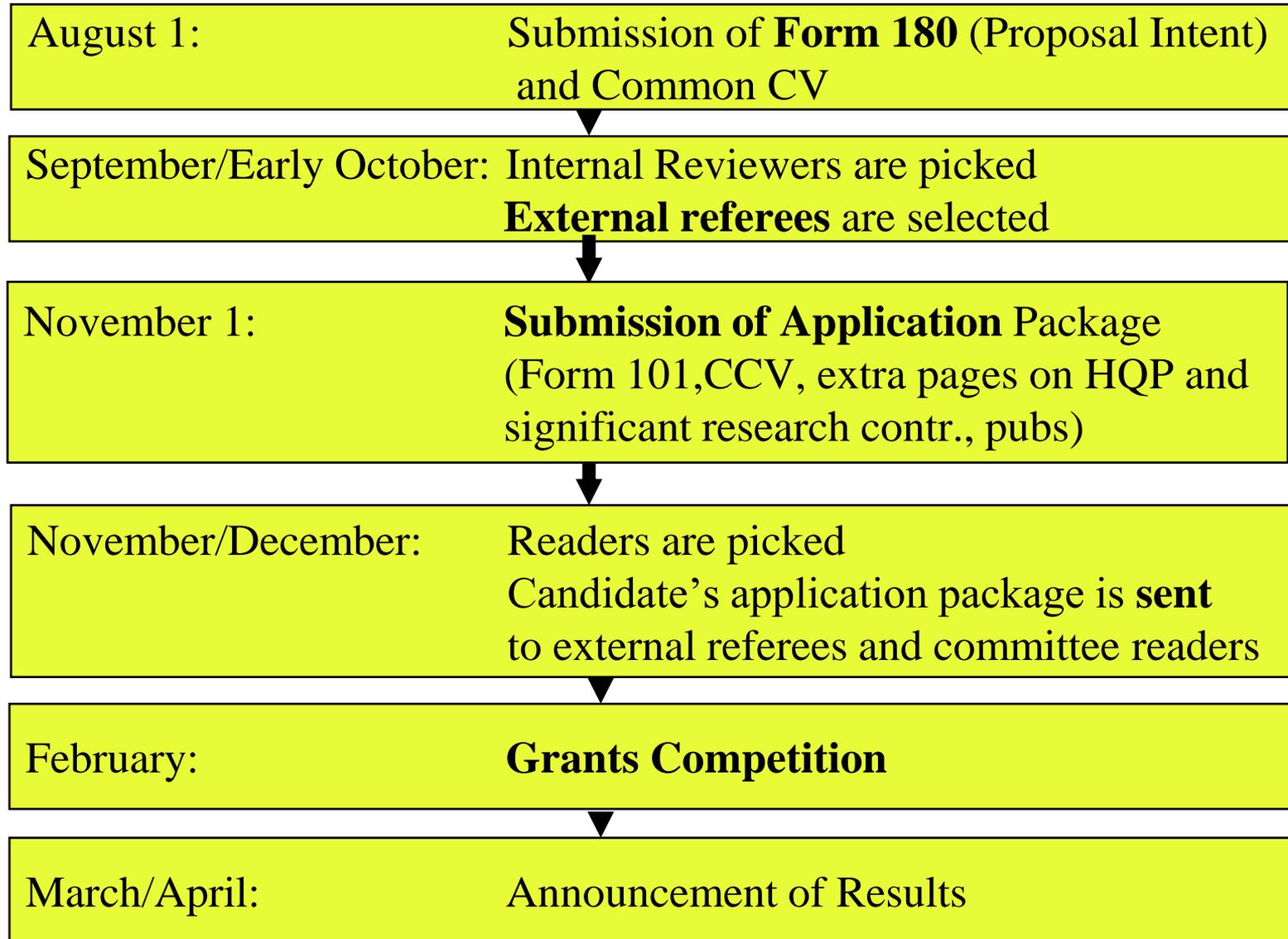
Promoting the integration of equity, diversity and inclusion-related considerations in research design and practices

Increasing equitable and inclusive participation in the research system, including on research teams”

“I welcome students from all groups into my lab” (as opposed to...?)

# **THE DG REVIEW PROCESS**

# *Timeline of evaluation*



Don't wait until the last afternoon / hour to submit!!

# Evaluation Group: e.g., Computer Science

## Research Topics:

CS01	Web-enabled Applications and Services (e-*)
CS02	User Adaptive Systems
CS03	Mathematical Computing
CS04	Theory of Computing
CS05	Algorithms and Data Structures
CS06	Computer Networks
CS07	Quantum Computing
CS08	Information Systems
CS09	Security and Privacy
CS10	Data Management
CS11	Programming Languages
CS12	Software Engineering
CS13	Formal Methods
CS14	Computing Systems
CS15	Parallel and Distributed Computing
CS16	Web-based systems
CS17	Human Computer Interaction
CS18	Artificial Intelligence
CS19	Computer Graphics and Visualization
CS20	Bioinformatics and Bioinspired Computing
CS21	Computer Vision and Robotics

Choose the most-appropriate panel, regardless of your departmental affiliation

# Evaluation Process

- From mid-December to early February, each EG member reviews
  - **20 - 30 applications** --> as 1st or 2nd Internal
  - **30 - 40 applications** --> as Reader
- External Referee reports trickle in during January, incorporated into member evaluations
- **The panel is not bound by external reviews** – I have seen many cases where the decision is not consistent with the reviews

# Rating of proposals

Each proposal is rated on:

- Excellence of Researcher
- Merit of the proposal
- HQP

Each aspect receives one of the following six ratings as the median of the 5 committee reviewers:

**Exceptional (E)**

**Outstanding (O)**

**Very strong (V)**

**Strong (S)**

**Moderate (M)**

**Insufficient (I)**

Example: V S S S M  $\rightarrow$  S

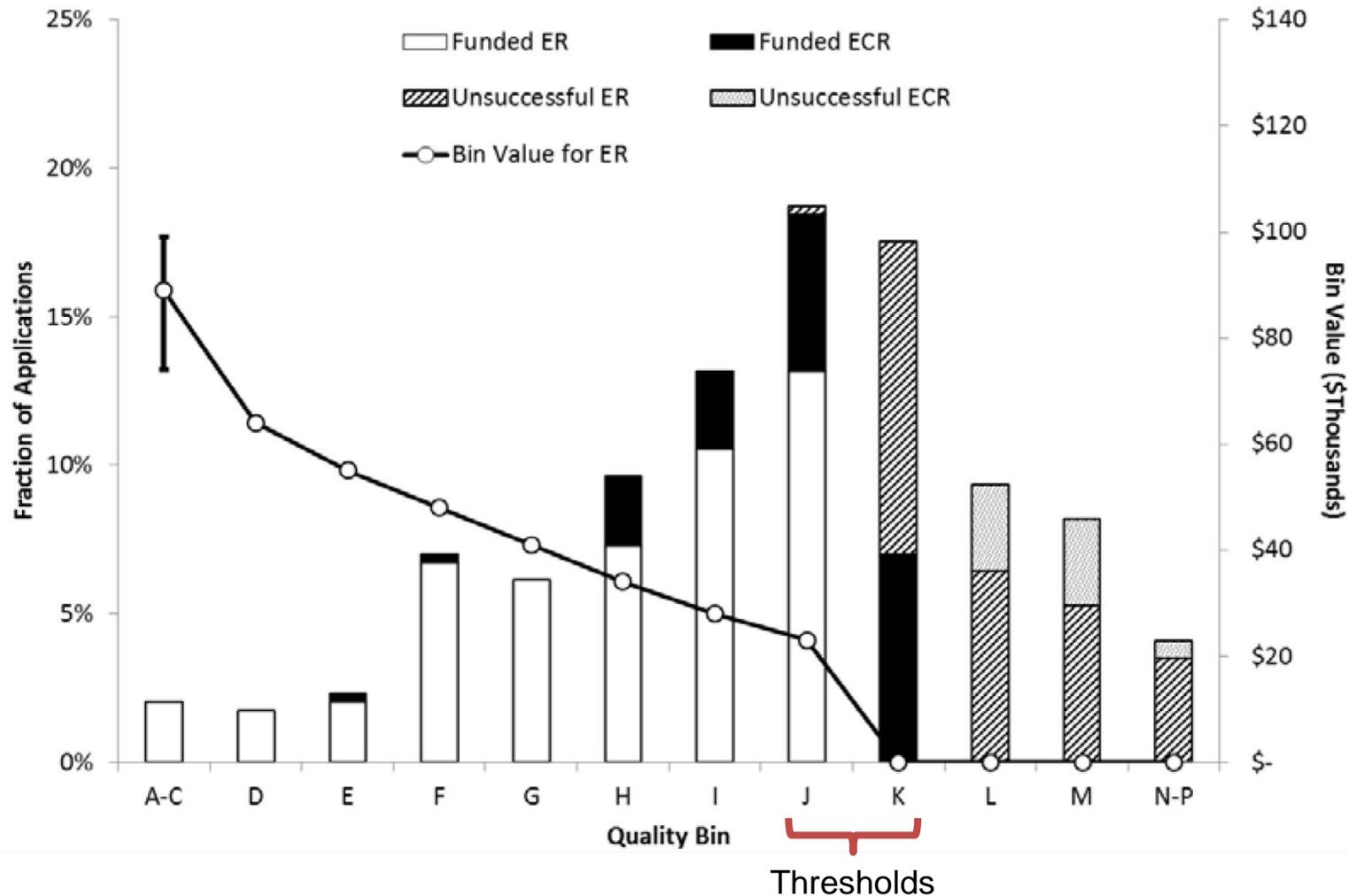
The three ratings are “added”, proposal placed into one of 16 bins, e.g. VSM in same bin as SSS. **This determines your funding level.**

# Minimum thresholds

From the peer-review manual:

- A rating of at least Strong is required under the Excellence of the Researcher criterion for an award to be made to an established researcher;
- Ratings of Insufficient under any of the three selection criteria for both early career and established researchers will result in no funding;
- Applicants will never be awarded more than the requested amount regardless of the funding level assigned to each bin.

# Average funding amount (CS EG)



# **PROFILE OF A WINNING PROPOSAL**

# Remember the three evaluation criteria:

- 1. Excellence of the researcher**
- 2. Merit of the Proposal**
- 3. Contributions to Training of HQP**

# The big picture

1. I'm not an expert in any of your disciplines; could I still **read** and **understand** it?
2. Would the literature review and your background convince me that the proposed research is **timely**, **important**, **rigorous**, and **excellent**?
3. Can I clearly see where **trainees** fit into projects? Are the projects appropriate to the trainee level?
4. Does your track record suggest that your research will lead to the **impacts** you anticipate?

# Proposal scope

- Proposal scope must be well thought out:
  - **Too narrow:**  
a single project, not advancing a program
  - **Too broad:**  
infeasible, unrealistic, applicant does not have the expertise and/or the resources
- Include enough technical substance (for the expert external referee)
- Refer to your contributions for more detail

# 1. Proposal

“Provide details to satisfy the expert; convince the non-expert about impact and importance” - from NSERC web site

- Originality and innovation; extent to which the proposal suggests and explores novel or potentially transformative concepts and lines of inquiry.
- Significance and expected contributions to research; potential for policy and/or technology related impact.
- Clarity and scope of objectives (research program with long-term goals rather than a single short-term project or collection of projects).
- Clarity and appropriateness of methodology.
- Feasibility.
- Consideration of sex, gender and diversity in the research design, if applicable.
- Extent to which the scope of the proposal addresses all relevant issues, including the need for varied expertise within or across disciplines.
- Appropriateness of, and justification for, the budget.
- Demonstration that the Discovery Grant proposal is conceptually distinct from research support held or applied for through CIHR and/or SSHRC.

# An “exceptional” proposal

- Coherent and focused research direction: **short-term** and **long-term** goals
- Essence of proposal explained in intuitive terms, and theory and applications nicely weaved into it.
- Gets to the objectives within the first couple of paragraphs
- Maximum 1 page of highly technical stuff
- **Impact:** Why is the proposed work significant?

# An “insufficient” proposal

- Vague goals
- Lack of focus: too many distinct subproblems
- Claims to attack unrealistic sized problems
- Confusing to read, overuse of acronyms/jargon
- Unclear that applicant has the expertise to do the proposed research
- Impact not clear or convincing (Make good use of the “Additional Information on Contributions” section)

## 2. Excellence of the researcher

Knowledge, expertise, and experience.

Quality of contributions to, and impact on, the proposed and other areas of research in the natural sciences and engineering.

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

# An “exceptional” researcher

- **Strong research record (most important)**
- Most Significant Contributions
  - Significant research contributions in the last 6 years, or prior to this but with continuing impact
  - Contributions should tell a story, rather than focusing on a single publication
- Strong HQP record
- Recognitions

# An “insufficient” researcher

- Many papers in unknown conferences and journals (quantity instead of quality)
- Research lacks focus (too diverse to be credible)
- Publication output insufficient in terms of significance
- Committee does not understand your choice of venues and overall impact

# 3. HQP

Quality and impact of past training of highly qualified personnel (HQP) (e.g., postdoctoral fellows, graduate and undergraduate students, technicians)<sup>\*\*\*</sup>, including:

- training environment provided for HQP;
- HQP awards and research contributions;
- outcomes and skills gained by HQP.

Quality, suitability and clarity of the planned training of HQP, including:

- overall training philosophy;
- research training plan for individual HQP.

Consideration of equity, diversity and inclusion in past and planned training of HQP.

<sup>\*\*\*</sup>N.B. Early Career Researchers are not expected to have a strong HQP record  
(but need a good plan!)

- Track record
  - Roles of students in research / publications explained
  - Students moving on to positions requiring the training they received (mention current employment)
- HQP training potential
  - Role of future students explained well in the proposal
  - Thesis topics defined (integrated with proposal)

# HQP

- Use pages on HQP to
  - Describe projects for HQP training
  - Discuss pertinence of the training plans and involvement of trainees in projects
  - Explain expected outcomes in research contributions
  - Details on planned contributions to training in a co-supervisory or collaborative context
  - Outline your approach to EDI

# First milestone: Notification of Intent (August 1, 2020)

- Title
- Summary
- Recommended Evaluation Group
- Recommended Reviewers
- CCCV

# Canadian Common CV



**Josh Neufeld**  
@joshdneufeld

Entering the Canadian Common CV. If you don't hear from me for a few days, you know where I am.

11:40 PM · Feb 18, 2015 · [TweetDeck](#)

5 Likes



**Dr Gavin Simpson**  @ucfagls · Feb 18, 2015

Replying to @joshdneufeld

@joshdneufeld careful, some unfortunate scientists have failed to return after venturing there

2



**Josh Neufeld** @joshdneufeld · Feb 18, 2015

@ucfagls Or they run out looking like the Hulk, with their laptop smashed to pieces behind them.



**Curtis Suttle** @Virosphere2012 · Feb 19, 2015

Replying to @joshdneufeld

@joshdneufeld Ah Yes - the Common CV where every agency gets to be unique. The worst solution to a tractable problem.



2

1



**Trevor Charles** @trevorcharles · Feb 20, 2015

Replying to @joshdneufeld

@joshdneufeld You mean the Canadian "Uncommon" CV?



2



**Freshwater fELA** @not\_Klaatu · Feb 22, 2015

Replying to @joshdneufeld

@joshdneufeld my favourite part is entering the same info. multiple times under same heading- e.g., start/end dates on funding...

# Uniweb

<http://uniweb.dal.ca>



- Personal Information
- Education
  - Recognitions
  - User Profile
- Employment
  - Research Funding History
- Activities
- Memberships
- Most Significant Contributions
- Contributions

Personal Information

Last modified on 5/10/2020, 2:03:34 PM

Identification [Edit](#)

**Dr. Robert Beiko**

Date of Birth: May 12  
Sex: Male  
Canadian Citizen  
Correspondence language: English  
Country of Citizenship: Canada

Language Skills [+ Add](#)

**English** (Read, Write, Speak, Understand, Peer Review) [Edit](#)  
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FUNDING TEMPLATE

Dalhousie University [X](#) [v](#)  
Generic

CANADIAN COMMON CV

Import from CCV  
Export to CCV  
Apply "submit" checkmarks

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TOOLS

Import publications  
Create/restore backups

# Last Thoughts

- Internal peer review is **vital**
  - Ask your colleagues / ADRs to help
- Remember that your proposal will be read by **specialists** and **non-specialists**
- Follow the NSERC guidelines closely – the EG panel uses them and referees' feedback forms are structured around them
- Don't despair if you don't get funded! Our success rate for ECRs is 70-75% but we so far have a 100% success rate in ECR reapplications in the following year

**Paola and Evangelos!**