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**RESEARCH TOOLS AND  
INSTRUMENTS  
PEER REVIEW MANUAL**

**2017-18**



## Research Tools and Instruments Peer Review Manual 2017-18

### Foreword

This manual is designed as a guide for Selection Committee members for the [Research Tools and Instruments \(RTI\) program](#). This document outlines the activities to be undertaken by members and Chairs during each competition year, and also describes the policies, guidelines and deliverables relevant to these activities. The manual is updated annually.

Applicants who refer to this manual should note that the content is intended to guide Selection Committee members and outline principles, rather than provide them with a set of rules.

For more information regarding the RTI program, policies, and guidelines send email to [resgrant@nserc-crsng.gc.ca](mailto:resgrant@nserc-crsng.gc.ca)

The evaluation of RTI applications in [Subatomic Physics](#) differs from these guidelines and is described in the current internal procedures of the Subatomic Physics Evaluation Section. For more information, contact the [Subatomic Physics Program Officer](#).

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# **1. Research Tools and Instruments program**

## **1.1 Program objectives**

[Research Tools and Instruments \(RTI\) grants](#) foster and enhance the discovery, innovation and training capability of university researchers in the natural sciences and engineering by supporting the purchase of research equipment.

## **1.2 Program description**

RTI grants are one-year awards of up to \$150,000 that assist in the purchase or fabrication of research equipment with a net cost between \$7,001 and \$250,000 (before taxes, customs and importation fees, transportation and shipping charges, assembly and installation costs).

NSERC will only accept requests:

- for tools and instruments that form a comprehensive system intended to support NSERC-funded research in the natural sciences and engineering (bundling of unrelated tools and instruments will not be accepted);
- for the purchase or rental of new, used or refurbished equipment; or for the repair or upgrade of equipment; or for the fabrication of equipment that is not readily available off the shelf; and
- for equipment that is purchased after the application deadline.

Note that equipment and items that are part of laboratory infrastructure or intended to render other equipment compliant with health and safety standards are not eligible for RTI support.

## **1.3 Nature of research supported**

Research in the natural sciences and engineering (NSE) encompasses a broad spectrum of activities. These activities range from curiosity-driven investigations with no immediate or even midterm application, as their importance stems from the intellectual structure of the discipline, right up to applied research or solutions to problems suggested by social and industrial needs. The Research Tools and Instruments program is open to activities across the entire spectrum. The program aims to foster activities that position Canada as a participant and leader in global science and engineering. In this sense, it can be both a flexible resource for Canada and create a favourable environment for the development of research personnel.

Increasingly, research on the most significant problems in the NSE requires the combined knowledge, expertise and contributions of many researchers, often from various disciplines. Creativity and innovation are at the heart of all research advancements. NSERC strives to fully value the role of collaborative endeavours and interdisciplinary work as a means to greater achievement in research through the peer-review system.

## 1.4 Eligible and ineligible expenses

Eligible and ineligible expenses pertaining specifically to the RTI program are listed below. Consult the [Tri-Agency Financial Administration Guide](#) for information about the eligibility of expenditures for the direct costs of research and the rules governing the use of grant funds.

Type of Expenditure	Eligible Costs	Non-Eligible Costs (Costs not eligible for funding must not be included in the application.)
<b>Equipment</b>	Purchase or rental of equipment including taxes, shipping and handling	-
<b>Other</b>	<ul style="list-style-type: none"> <li>▪ Transportation/shipping costs for purchased equipment;</li> <li>▪ Fabrication, assembly, and installation of the equipment;</li> <li>▪ Extended warranty or service contract;</li> <li>▪ Brokerage and customs charges for the importation of equipment and supplies;</li> <li>▪ Testing/calibrations costs;</li> <li>▪ On-site costs of training staff to use equipment;</li> <li>▪ Software licensing or upgrades.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Salaries and benefits;</li> <li>▪ Travel;</li> <li>▪ Insurance costs for equipment and research vehicles;</li> <li>▪ Laboratory infrastructure;</li> <li>▪ Costs of the construction, renovation or rental of laboratories or supporting facilities</li> <li>▪ Equipment or items intended to render other equipment compliant with health and safety standards</li> </ul>

## 1.5 Eligibility to apply

In addition to NSERC's [Eligibility Criteria for Faculty](#), applicants and co-applicants must each currently hold or be applying for one of the following NSERC research grants at the time of application: Discovery Grant, Discovery Development Grant, Strategic Partnerships Grants, Collaborative Research and Development Grants, Canada Research Chairs, or Canada Excellence Research Chairs.

Eligibility decisions are the responsibility of NSERC staff. Selection Committee members who have doubts about a researcher's eligibility should review the application on the same basis as all others, but should alert NSERC staff to the potential problem(s) as soon as possible.

## **2. Membership**

### **2.1 Membership selection process**

RTI Selection Committee members are appointed every year, for a one-year term. Potential members can include established researchers, early-stage scientists and engineers from universities, government or industry. Potential members are approached by Program Officers regarding their willingness to serve on the Committees; they need not be NSERC grantees.

Past members may be approached by Program Officers to provide recommendations and references for potential new members. These recommendations can include comments on the background, stature, and experience of nominees. Factors such as the nominee's involvement in collaborative and interdisciplinary research may also be considered. To learn more about the selection of members consult the [Guidelines Governing Membership of Selection Committees](#).

The following documents must be read and agreed to by all members of NSERC's Evaluation Groups, Selection Committees, or Panels upon appointment and on an annual basis thereafter:

- [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#)
- [Conflict of Interest and Confidentiality Policy of the Federal Research Funding Organizations](#)

Acceptance of a term as a member brings with it a commitment to participate in the evaluation of applications assigned to a committee within guidelines established by NSERC. Members and chairs must adhere to NSERC policies and guidelines including those on conflict of interest, diversity and gender equality, communication with applicants, and confidentiality.

The size of the RTI Committee depends on the number of applications received. Prior to receiving the applications, a pool of reviewers will be assembled, covering a wide range of expertise. The selection of members will be finalized once all applications are received, and will be based on the expertise required and the number of applications submitted to the Committee.

### **2.2 Roles and responsibilities**

#### **2.2.1 Members**

Members participate in the evaluation of applications and make recommendations to NSERC based on their assessment. Specific responsibilities of members include:

- participating in preparatory meetings/discussions and information sessions prior to submitting their scores;
- submitting expertise "comfort ratings" for the applications;
- providing input on assignments (e.g., possible transfer of the RTI application to another

- Selection Committee);
- flagging applications where there are concerns related to Subject Matter Eligibility (SME), eligibility of equipment requested and/or budget items;
  - reviewing all assigned applications;
  - identifying applications that would benefit from partial funding, if applicable;
  - submitting scores in a forced distribution for all assigned applications;
  - participating in further discussion of some applications if required; and
  - preparing messages to applicants on partial funding recommendations.

### 2.2.2 Chairs

Chairs provide leadership to ensure a high-quality, peer-review process. Over the course of the review process, Chairs may provide their input and recommendation to NSERC on:

- the final membership slate;
- the final assignment of applications;
- possible transfers of applications to other Selection Committees;
- subject matter eligibility concerns raised by NSERC or members;
- possible rejection of applications (e.g., incomplete applications, ineligibility of equipment, requests not intended to support NSERC-funded research in the NSE);
- final ranking of applications with similar scores; and
- policy issues.

### 2.2.3 NSERC staff

NSERC staff are not committee members and do not evaluate applications. Staff oversee the membership and the review process and provide advice on NSERC policies, guidelines, and procedures.

## 2.3 Orientation session

In December (or earlier in the fall, if possible), a virtual orientation session is usually held for Selection Committee members with the Chair(s) and NSERC Program Officers. The purpose of the session is to provide information on important NSERC policies and committee practices, and to provide an opportunity for questions. The Program Officer and Chair will present information on the following topics:

- **Competition cycle** – An overview of the timetable of the RTI Grants competition, with information on the responsibilities of Committee members, and the role of the Program Officers and Chair.
- **Conflict of interest** – NSERC’s guidelines on conflict of interest, with tips on how to avoid potential conflict of interest situations.
- **Confidentiality** – Members’ evaluations should be made in isolation and not discussed with other Committee members or with individuals outside of the Committee.



- **RTI grant review process** – An overview of the criteria and review procedures, including what to look for in various sections of the RTI application and the Canadian Common CV (CCV).

## **2.4 Time commitment**

A Selection Committee member's preparation for the RTI competition involves:

- attending the orientation session;
- in-depth reviewing of the applications to which they are assigned as a reviewer;
- identifying applications where there are concerns related to Subject Matter Eligibility (SME), eligibility of equipment and/or budget items, and those that would benefit from partial funding awards, if applicable. These applications may need further discussion with the NSERC Program Officer, Chair and other reviewers; and
- arriving at a score in a forced distribution for all assigned applications.

Each Selection Committee member normally reviews on average between 20 and 40 applications. The time required for this review will vary according to the Committee workload and the workload of the individual member.

## **3. Review Procedures**

### **3.1 Assignment of applications**

#### **3.1.1 Selection Committee assignment**

Applications are initially assigned to a Selection Committee according to the information submitted by the applicant. Applicants select the **evaluation group** that best fits their research discipline. Their suggestion is used for the preliminary assignment of the application to the appropriate RTI Selection Committee. Committee members can flag applications where a transfer to another committee may be more suitable. These cases may be discussed with the Selection Committee Chairs before final decisions are made; however, NSERC makes the final decision on assignments.

#### **3.1.2 Assignment of committee reviewers**

Each application is assessed by up to five (5) Selection Committee members. In order to assist in the assignment of applications, members are asked to provide their expertise comfort or knowledge levels for the applications received for a given year (e.g., H = high, M = medium, L = low, VL = very low, X = cannot review due to language proficiency, or C = conflict of interest).

NSERC staff, in collaboration with the Chair(s), assign reviewers to each application using the identified comfort levels, information about possible conflicts of interest, and in consideration of linguistic abilities, along with the need to balance workload.

Usually by the end of November or early December, each member is provided with the final list of applications for which they are responsible to review. Members may be asked to review applications that are not in their primary research field. Any problem with the assignment of applications should be flagged and brought to the NSERC Program Officer's attention as soon as possible/ early in the process.

### **3.1.3 External reviewers**

There are no external reviewers for the RTI program.

## **3.2 Applications and review material**

### **3.2.1 Incomplete or non-adherent application**

The onus is on the applicant to provide complete and sufficient information that adheres to NSERC [General Presentation Guidelines](#) and [Instructions for Completing an Application](#). Problems related to the application content should be brought to the attention of the Program Officer. In order to maintain the principle of fairness in the competition, applicants must adhere to the guidelines in the preparation of application materials. Should NSERC staff determine that the information provided is incomplete or non-adherent to NSERC guidelines or instructions, the application may be rejected.

An application will be rejected if the following information is not provided at the time of submission (where applicable):

- The letter confirming a cash contribution from an organization other than the applicant's or co-applicants' institution[s] towards the purchase of the equipment.
- The authorization from NSERC confirming the use of funds from NSERC grants (with the exception of DG funds) towards the purchase of the equipment.
- The justification for not submitting two (2) recent quotations for any items or any systems costing more than \$25,000 (before taxes).

### **3.2.2 Review materials**

Selection Committee members will have access to the following application material in a secure electronic environment in early December:

- RTI applications;
- assignment and scoring spreadsheet; and
- [assessment notes template](#).

Members are required to review their assignments and determine whether they have a conflict of interest and have the linguistic capacity to review the proposals. Members should notify the NSERC Program Officer of any issues related to the applications.

## **4. Evaluation of Applications**

### **4.1 Selection criteria**

Applications are assessed on the basis of the selection criteria listed below. Selection Committee members provide an overall score based on all five criteria. There is no specified weighting of the criteria.

#### **1. The excellence of the applicant(s):**

- knowledge, expertise, and experience of the applicant(s) in the NSE; and
- extent to which the applicant(s) have relevant experience and demonstrated ability to fully use the equipment.

#### **2. The merit of the proposed research program(s):**

- overall quality of the research program(s);
- feasibility of the research program(s); and
- potential for major advances in the discipline.

#### **3. The need and urgency for the equipment; including availability of, and access to, similar equipment:**

- the impact of a delay in the acquisition of the equipment;
- potential for the new equipment to move the research forward or help to launch new research directions;
- impact of the new equipment on the pace of progress for existing or proposed research;
- availability of other equipment/facilities/services in the vicinity;
- impact of limited or lack of access to existing equipment; and
- the need to upgrade or replace obsolete or failed equipment.

#### **4. The suitability of the proposed equipment for the proposed research program(s):**

- for multi-user applications, demonstration that the proposed equipment is suitable for a multi-user facility and for the desired applications;
- demonstration that the equipment is essential to do the work and that there are no other more cost effective ways of obtaining the results;
- probable degree of utilization by, or accessibility for, the applicant(s) and other users;
- capability of applicant(s) to fully utilize the equipment; and
- accessibility of the equipment, both in terms of location and the availability of technical support to assist in operations.

When the justification for the equipment is based to some extent on the anticipated use by, or benefit to, other NSE sectors, the applicant should describe the support secured from these sources or the demonstrated efforts that have been made to secure it. The RTI Selection Committee should consider this information for this criterion.

## 5. The importance of the equipment for the training of highly qualified personnel:

- the quality and extent of training;
- the opportunity for hands-on training; and
- the potential to provide marketable skills for students trained on the equipment.

**Note:** The necessity of the requested item(s) for the completion of student projects and theses should be addressed under the third criterion — need and urgency for the equipment, including availability of, and access to, similar equipment).

## 4.2 Review process

Up to five members will be assigned to assess each RTI application. Members should not expect to receive external reviewer reports since there are no external reviews requested for RTI applications. Committee members' evaluations should be made in isolation and should not be discussed with other members of the Committee, except during any teleconference scheduled for flagged applications. Members should not discuss applications with individuals outside of the Committee at any time. Members should contact their NSERC Program Officer for assistance in any regard and at any time.

Applications are assessed on the basis of the five evaluation criteria. Members will score each application from 1 to 10 (10 being the highest score), ensuring a forced distribution. Members provide an overall score for each application based on all five criteria; there is no specified weighting of the criteria.

Once NSERC receives the scores from all members, they will be entered into a spreadsheet and the applications will be ranked based on the average score.

At any point during the review, applications may be flagged by NSERC staff, the Chair, or members of the committee for additional discussion.

### 4.2.1 Eligibility of subject matter and of the equipment

While reviewing applications, Selection Committee members are asked to consider subject matter eligibility and eligibility of equipment, to note any anomalies in the budget, and to bring both to the attention of the NSERC Program Officer. These cases may require further input from the Chair and members, and will be resolved before the results are finalized.

With respect to subject matter eligibility, members should specifically note how equipment purchased with RTI grants is going to be used, as **the intent is for equipment grants to foster and enhance the discovery, innovation and training capability of university researchers in the natural sciences and engineering (NSE)**. Equipment funded by the RTI grant can be used for research that falls outside the NSE, but applicants must clearly document that the primary and majority of the use will be directed toward NSERC-funded research in NSE. Applications are assessed based on the NSERC-funded research that will be supported.

#### **4.2.2 Partial funding recommendations**

Awarded RTI grants should normally be for the full cost of the recommended items (including tax, transportation and eligible installation costs). RTI Selection Committees may recommend partial funding, but the amount recommended must be sufficient to allow for the purchase of a functional unit. Ineligible items will be deducted by NSERC. The Committees must provide NSERC staff with details of the partial award, including a listing of all components recommended for funding. Program Officers will prepare written comments to specify which components of the equipment are being funded.

In the Budget Justification section, applicants are asked to outline any ‘Relationship to Other Sources of Support’ and explain any relationship and/or overlap (conceptual or financial) between work supported by other funding sources and work supported by NSERC, including the application under review. In its review, the Selection Committee will focus specifically on other equipment support and its relationship to the current proposal.

#### **4.2.3 Implicit or unconscious biases**

NSERC asks committee members to consistently guard against the possibility of unconscious bias influencing the decision-making process, whether this bias is based on a school of thought, fundamental versus applied research, certain sub-disciplines, areas of research or approaches (including emerging ones), size or reputation of an institution, age, personal factors, sex or gender of the applicant. NSERC cautions members against any judgment of an application based on such factors.

NSERC is actively engaged in increasing diversity and gender equity in its peer review process to increase the inclusion of women and other under-represented groups in the NSE. For reference, see [NSERC’s Policy Statement on Gender Equality in Science and Engineering](#) and available resources such as [Strengthening Canada’s Research Capacity: The Gender Dimension](#) and [NSERC 2020: A Strategic Plan](#).

#### **4.2.4 Deliverables**

Selection Committee members will submit scores (for all applications assigned to them) to the NSERC Program Officer.

#### **4.2.5 Use of the assessment notes template**

Using the Assessment Notes Template provided by NSERC will help Selection Committee members ensure that all criteria are taken into account when formulating recommendations for RTI applications; however, its use is not mandatory. NSERC does not collect these notes, but requires that all material used by members during the competition be destroyed at the end of their work on the Committee. See [Appendix](#) for Template.

## **5. Confidentiality**

Details of the scoring, deliberations, and recommendation on a specific application are confidential and must never be divulged. Release of information must be done by NSERC. Under no circumstances should members divulge to anyone the recommendations emanating from the peer review process.

In accordance with the [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#) (Federal Research Funding Organizations) and the [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#) (NSERC), members are not permitted to discuss specific results or the deliberations. Requests from applicants or enquiries on competition results, individual cases, or discussions must be redirected to NSERC staff.

## **6. Competition Results**

### **6.1 Communication of the results to applicants**

NSERC Program Officers prepare a document for each applicant indicating how the application ranked in the competition and, in the case of partial funding, which items are being funded, as recommended by the Selection Committee.

### **6.2 Annual reporting**

NSERC releases a [statistical package](#) of results at the end of the competition cycle on the NSERC website. A brief annual report is also prepared by NSERC Program Officers, as needed, which could be distributed to groups such as department chairs in a given discipline, professional associations, etc.

## **7. Legal and Ethical Information**

Legal and ethical information can be found in Section 9 of the [Discovery Grants peer review manual](#).

## Appendix A – Assessment Notes Template

### Research Tools and Instruments Grant Application

<b>Applicant</b>	<b>Department/University</b>
<b>Title of Proposal</b>	<b>Amount Requested</b> \$
<b>EVALUATION CRITERIA</b>	
<b>Excellence of the applicant(s)</b>	
Calibre of the applicant(s)	
Relevant experience to use the equipment	
Demonstrated ability to fully use the equipment	
<b>Merit of the proposed research program(s)</b>	
Quality of research program(s)	
Feasibility of the research program(s)	
Potential for major advances in the discipline	
<b>Need for and urgency of the equipment; including availability of, and access to, similar equipment</b>	
Impact of delay in the acquisition of the equipment	
Potential for the new equipment to move the research forward or help to launch new research directions	
Impact of the new equipment on the pace of progress for existing or proposed research	
Availability of other equipment/facilities/services in the vicinity	
Impact of limited or lack of access to existing equipment	
Need to upgrade or replace obsolete or failed equipment	
<b>Suitability of the proposed requested equipment</b>	

<b>for the proposed research program(s)</b>	
Probability of utilization or accessibility of outside users Suitability for a multi-user facility and for the desired applications	
Capability of applicant(s) to utilize equipment Demonstration that the equipment is essential to do the work and there are no other more cost-effective ways of obtaining results	
Probable degree of utilization by, or accessibility for, the applicant(s) and other users	
Capability of applicant(s) to utilize equipment	
Accessibility of equipment (location and availability of technical support)	
<b>Importance of the equipment for the training of highly qualified personnel, HQP</b>	
Importance of the equipment for training	
Quality and extent of training	
Training received could be a marketable skill for HQP	
Opportunities for hands-on training	
<b>OTHER CONSIDERATIONS</b>	
<b>Eligibility of the Subject Matter</b>	<input type="checkbox"/>
<b>Eligibility of the equipment and expenses (Reviewed by Selection Committee Member)</b>	<input type="checkbox"/>
<b>Other comments (e.g., special circumstances):</b>	
<b>Overall Impression/Priority:</b>	
<b>Recommendation</b> (explain and describe item(s) if a partial award is recommended): \$	
	<b>Score:</b>



## **Links**

1. [Guidelines Governing Membership of Selection Committees and Panels](#)
2. [Conflict of Interest and Confidentiality Agreement for Review Committee Members, External Reviewers, and Observers](#)
3. [Conflict of Interest and Confidentiality for Review Committee Members, External Reviewers, and Observers](#)
4. [Policy and Guidelines on the Assessment of Contributions to Research and Training](#)
5. [Guidelines for the Preparation and Review of Applications in Engineering and the Applied Sciences](#)
6. [Guidelines for the Preparation and Review of Applications in Interdisciplinary Research](#)