



7. Review of Research Tools and Instruments Grant Applications

7.1 Contact Point

For eligibility, missing documents, application assignments and review process, contact the program officer.

7.2 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 and installations.

7.3 Description

RTI Grants are one-year awards that assist in buying or developing research equipment that costs more than \$7,000. In exceptional cases, multiple-year requests will be accepted and the onus is on the applicant to clearly explain the rationale for these cases. Items costing less than \$7,000 each can be purchased with Discovery Grant funds or be included as a complement to a main piece of equipment being requested. Applications for the purchase of several pieces of equipment costing less than \$7,000 each are also acceptable. RTI grants are divided into three categories according to the total net cost of the equipment, i.e., excluding taxes, shipping, and handling. These categories are:

- RTI – Category 1: \$7,001 to \$150,000;
- RTI – Category 2: \$150,001 to \$325,000 (Subatomic Physics only);
- RTI – Category 3: more than \$325,000 (Subatomic Physics only).

7.4 RTI Applications – Category 1

NSERC will accept applications under Category 1 for equipment whose total net cost, i.e., excluding taxes, shipping and handling, is up to \$250,000, provided that the applicant is able to secure funding from other sources to bring the amount requested from NSERC to \$150,000 or less. Such sources may include contributions from NSERC Discovery Grants held by the applicant or co-applicants. The use of other types of NSERC grants is permitted, provided that prior written authorization is obtained from NSERC.

NSERC will pay part or all of the applicable taxes, as well as part or all of the shipping and handling expenses, as long as the overall grant does not exceed \$150,000. The applicant will be responsible for any amount in excess of \$150,000.

NSERC recognizes that equipment may have to be purchased at any time during the year to avoid an unnecessary delay in a research program. In these instances, grantees should explore all possible avenues, such as the institution's General Research Fund, to cover these costs (refer to the paragraph on *Residual Balances in Agency Accounts* under *Administrative Matters* in the [Financial Administration](#) section of the *Program Guide for Professors*). NSERC will accept applications only for equipment that has not yet been purchased, or that has been purchased within the one-year period immediately prior to the current deadline for receipt of applications. All applications are reviewed on a competitive basis. NSERC will not accord any preferential treatment for equipment already purchased at the time of application and is under no financial obligation should such an application be unsuccessful in the competition. The applicant must indicate whether equipment has already been purchased and justify why a purchase prior to the application was necessary.

7.4.1 Conflict of Interest

Note: The conflict of interest guidelines found in Section [6.7.1](#) also apply to RTI Grant applications. Best practice suggests involving only members not submitting RTI applications. The following describes options and requirements when EG members are applying:

- If EGs form a specific section to evaluate RTI applications, members with RTI applications in the current competition should not be part of the section nor should they participate in the final ranking of RTI applications.
- If EGs do not form an RTI section, but the whole EG evaluates and priority ranks applications, the final ranking of the RTI applications must be done in the absence of EG members with applications in the competition. This will allow members with applications in the competition to contribute their input on other applications, but not be involved in the final ranking.

Some EGs use a system in which all members provide an initial rating or ranking of all RTI applications (for which they are not in a conflict of interest). These ratings are used to establish a priority order for funding. During the competition meetings, the EGs may discuss only the applications that are near the estimated cutoff point corresponding to the budget available, or those with a high standard deviation as calculated from the scores received prior to competition. In such a system, members with applications in the competition must be excluded from any discussion or re-ordering of the applications. In November, when it is known which members have submitted RTI Grant applications, the program officer will propose a process to the EG Chair that conforms as closely as possible to the procedures outlined above. In designing the process, the following practices will be encouraged:

- Pre-ranking of RTI applications before the competition, with scores being sent in advance of the competition week;
- Monitoring of the deliberations by EG Chairs and/or senior NSERC staff;
- Designing spreadsheets to protect the identity of reviewers and to prevent members from learning the scores given to their own applications;
- Using past members or other experts for the adjudication of RTI applications.

7.4.2 Criteria for Evaluation

Applications are judged on the basis of the following criteria:

- **The excellence of the applicant(s)** (see Section [6.6.1](#) for additional factors related to this criterion):
 - Scientific or engineering calibre of the applicant and major users
 - Extent to which the applicant or the group have relevant experience and demonstrated ability to fully use the equipment
- **The merit of the proposed research program(s)** (see Section [6.6.1.2](#) for additional factors related to this criterion):
 - Overall quality of the research programs of proposed users
 - Recent track record
 - Potential for major advances in the discipline
- **The need and urgency for the equipment, including availability of, and access to, similar equipment:**
 - What is the impact of a delay in the acquisition of the equipment?
 - Is new equipment moving the research forward or helping to launch new research directions?
 - Will the progress of the research be slowed by lack of access to new equipment?
 - Is there a problem in accessing existing equipment (e.g., is the increased number of users slowing research progress)?
 - Are there other available facilities/services in the vicinity?
 - Is there a limited institutional infrastructure?
 - Is there a need to upgrade or replace obsolete or failed equipment?

Applicants (and co-applicants) are asked to provide information on other equipment obtained through NSERC funds and other sources within the past four years and on equipment currently applied for from other sources (e.g., Canada Foundation for Innovation). They must provide a brief description of the equipment obtained or applied for to enable the committee to evaluate the use of the equipment and its relationship with the proposal. This information should be provided in the budget justification section of Form 101.

- **The suitability of the requested item(s) for the proposed research program(s):**
 - For multi-user applications, is the proposed equipment suitable for a multi-user facility and for the desired applications?

- Is the equipment essential to do the work, or are there other more cost effective ways of obtaining the results (e.g., send samples for analysis, use other techniques)?
- What is the probable degree of utilization or accessibility of outside users?
- What is the capability of applicant(s) to fully utilize the equipment?
- How accessible will the equipment be, 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 sectors, the applicant should describe the support secured from these sources or demonstrated efforts made to secure it. The EG should take this information into consideration in assessing this criterion.

- **The importance of the requested item(s) for the training of highly qualified personnel** (see Section [6.6.1.3](#) for additional factors related to this criterion):
 - The importance of the equipment for training as well as the value of the training
 - Will this type of training be a marketable skill for students?
 - The quality and extent of training
 - The opportunity for hands-on training

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

7.4.3 Eligible and Ineligible Expenses

Type of Expenditure	RTI – Category 1
Salaries and benefits	Not eligible
Equipment or facility	Purchase or rental
Travel	Not eligible
Others (shipping costs for purchased equipment, extended warranty, brokerage and customs charges for the importation of equipment and supplies)	Eligible

The following costs are not eligible:

- Insurance costs for equipment and research vehicles;
- Costs of the construction, renovation or rental of laboratories or supporting facilities;
- Software licensing or upgrades for subsequent years.

7.4.4 Policies and Guidelines

EGs are asked to provide particularly careful and sensitive evaluation to requests for equipment from early career researchers (ECRs). In fields where any real advance requires access to sophisticated equipment that is not available on site, EGs are asked to place special weight on the “need and urgency” criterion in the case of ECRs. The “calibre and relevant experience” criterion must be assessed in the context of the pool of relatively young researchers who do not yet have extensive research experience. An ECR should be provided with the resources to demonstrate within a reasonable period of time (for example, five years) that he/she can make significant advances in the field. However, ECRs, like all applicants, have to provide sufficient justification for the equipment requested in light of other equipment funding that they may have received from NSERC and other sources, including the Canada Foundation for Innovation.

While NSERC supports ECRs in having an appropriate opportunity to build a strong research program, responsibility for this does not rest solely with NSERC. The university is expected to assist in launching a young researcher’s program. Award quotas by department or university are not permitted. The EG cannot establish policies whereby, for example, RTI applications from a given applicant could only be recommended every two years.

Only applications from researchers (applicant and co-applicants) who currently hold or are applying for an NSERC research grant (e.g., Discovery Grant, Strategic Grant, Research Partnerships Program Grant, Canada Research Chair) at the time of application will be accepted.

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

NSERC asks EGs to provide a ranked RTI list in the event that the budget situation changes after the competition. It is important that the final ranked RTI list, both within or exceeding the expected budget, truly reflect the order in which an EG wants RTI applications to be funded. Last-minute revisions to the RTI budget may result in more or fewer awards being made, and NSERC staff rely on the EG rankings to make these adjustments.

7.4.5 Deliverables

Reviewers typically use a spreadsheet to submit ratings (for all applications assigned to them) to the program officer in advance of the competition session. These ratings are tabulated and applications sorted by priority. The prioritized list is distributed at the competition session, and a subset of the applications is discussed in depth at that time.

These are applications that are typically near the cutoff for which ratings from different reviewers differ significantly or for which a member questions the priority assigned to the application. The exact process may take different forms, e.g., straight ranking of all applications, a rating on a 5- or 10-point scale either with a flat distribution (equal numbers of 1, 2, 3, etc.) or a normal distribution. The section chair or program officer will brief members on the EG's particular procedures.

7.4.6 Use of Rating Form

Using the rating forms provided by NSERC will help to ensure that all criteria are taken into account when formulating recommendations for RTI applications. However, its use is not mandatory.

7.5 RTI Applications – Categories 2 and 3

The review of RTI grant applications, Categories 2 and 3, **only** applies to Subatomic Physics. This review is carried out in agreement with the internal procedures of the Subatomic Physics Evaluation Section. For additional details related to the internal procedures of the Subatomic Physics Evaluation Section, please contact the program officer responsible for the section.

7.5.1 Conflict of Interest

The conflict of interest guidelines found in Sections [6.7.1](#) and [7.4.1](#), also apply to RTI applications in categories 2 and 3. The following text describes the conflict of interest guidelines used by the SAP Evaluation Section.

Each member must notify, as early as possible, to NSERC any real, apparent or potential conflict of interest. There is real, potential or apparent conflict of interest:

- when a member is the applicant, co-applicant or co-signer;
- when a member is, or was in the last six years, from the same university, organization or department, or belongs, or belonged in the last six years, to the same research unit as the applicant(s);
- when a member is, or was in the last six years, part of the project's collaboration in his/her own country;
- when there is an administrative or family link between the member and the applicant (e.g., head of the department, dean of the faculty);
- when the member is an industrial or government representative who is, or was in the last six years, directly involved in collaborative activities with the applicant;
- when the member is a former research supervisor or graduate student of the applicant(s), or has collaborated or published with the applicant(s) within the past six years;

- when a member is, or was in the last six years, a member of any advisory body (such as a committee) to a resource applying for support or a facility that hosts the proposed research;
- when the member is uncomfortable with reviewing the applicant's proposal due to previous conflicts or any other reason;
- when NSERC staff have reason to believe that a specific member should not be involved in the review.

The above guidelines do not necessarily respond to all possible situations, and NSERC relies on the active participation of the section members in identifying any situation that could be a real, potential, or apparent conflict of interest. The final decision on conflicts of interest rests with NSERC.

Note: For proposals involving at least four universities, a section member from the same institution as the principal investigator, or one or several of the co-applicants, is allowed to participate to the discussions and vote as long as he/she is not involved in the same project/collaboration.

7.5.2 Criteria for Evaluation

In addition to the criteria for evaluation described in section [7.4.2](#), applications are judged on the basis of the following criteria:

Organizational structure, accessibility and synergy:

The applicant(s) must clearly demonstrate a clearly defined organizational structure to ensure that the equipment can be operated and maintained efficiently and effectively, as well as providing ready access for other users. Examples of elements to be addressed include:

- provisions for the maintenance and upgrading of equipment
- operation of the equipment
- efficiency, effectiveness and accessibility for other users
- appropriateness of the proposed plan and budget for maintenance and upgrading
- suitability of the director's and users' committee
- value and capability of each piece of equipment

In addition, the synergy of the proposed equipment or installation with existing ones should be considered. Synergy, in this case, is considered to be the extent to which a grouping of equipment and staff enhances the value and capability of each piece of equipment and enables researchers to obtain results or carry out studies that would otherwise be very difficult or impossible.

7.5.3 Eligible and Ineligible Expenses

Type of Expenditure	RTI – Categories 2 and 3
Salaries and benefits	Salaries and training costs of technical support personnel for the initial phase-in period of operations (up to two years)
Equipment or facility	Purchase or rental
Travel	Travel costs to visit manufacturers to select major equipment purchases
Others (shipping costs for purchased equipment, extended warranty, brokerage and customs charges for the importation of equipment and supplies)	Eligible

The following costs are not eligible:

- Insurance costs for equipment and research vehicles;
- Costs of the construction, renovation or rental of laboratories or supporting facilities;
- Software licensing or upgrades for subsequent years.

7.5.4 Site Visits

In the case of RTI – Category 2 and 3 applications, the SAP Evaluation Section may receive input from an expert *ad hoc* committee that would perform an on-site review.

After the review, each committee submits a report to NSERC. Each report is provided to the section members (except those in conflict), as well as to the applicants (without the funding recommendations), prior to the competition.

While these ad hoc committees provide expert assessments, the SAP Evaluation Section makes the conclusive recommendation to NSERC on any application.

For additional information related to Site Visits or any other SAP specific aspect of the review process, please contact the program officer responsible for the section.

Rating Form

Research Tools and Instruments Grant Application

Applicant	Department/University	First-time Applicant <input type="checkbox"/>
Title of Proposal	Amount Requested	
	Number of Users	
EVALUATION CRITERIA (See Section 7 of Peer Review Manual)		
	Provide comments on each criteria	
Excellence and experience of researcher(s)		
Caliber of applicant/users		
Relevant experience to use the equipment		
Demonstrated ability to fully use the equipment		
Merit of programs to be supported		
Quality of research program(s) of proposed users		
Recent track record		
Potential for major advances in the discipline		
Need and urgency		
Impact of delay in the acquisition of the equipment		
Impact of equipment on program(s) and areas of research (e.g. launch of new directions; draw backs...)		
Accessibility of equipment to users		
Need for dedicated equipment		
Availability of similar equipment in the vicinity		
Institutional infrastructure limitations		
Need to upgrade or replace obsolete or failed equipment		
Suitability for proposed research		
Probability of utilization or accessibility of outside users		
Capability of applicant(s) to utilize equipment		
Accessibility of equipment (location & availability of technical support)		
Impact on HQP training		
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		
Other comments (e.g., special circumstances):		
Overall Impression/Priority:		Rating:
Recommendation (explain and describe item(s) if a partial award is recommended): \$		