

ACTIVITIES IN SCIENCE, ENGINEERING, AND MATHEMATICS FOR PERSONS WITH DISABILITIES

Program Solicitation, Information, and Guidelines

DIRECTORATE FOR EDUCATION AND HUMAN RESOURCES (EHR)

PROPOSAL DEADLINES: *Preliminary Proposals - July 15 of Current Year*
Formal Proposals - October 1 of Current Year

- *Demonstration Projects*
- *Research and Development Projects*
- *Information Dissemination Projects*
- *Institutionalization of Experimental Projects*



NATIONAL SCIENCE FOUNDATION

INTRODUCTION

The National Science Foundation (NSF) has a mandate to ensure the vitality of the United States in the scientific and technical enterprise. The goals of the Division of Human Resource Development (HRD), located in the Directorate for Education and Human Resources (EHR), are directed toward this end by promoting activities to increase the participation of traditionally underrepresented communities in science, mathematics, engineering and technology (SMET) education and careers.

Within HRD, the Program for Persons with Disabilities (PPD) is committed to bringing about needed change in academic and professional climates, increasing the awareness and recognition of the needs and capabilities of students with disabilities, promoting the accessibility and appropriateness of instructional materials, media, and educational technologies, and increasing the availability of student enrichment resources including mentoring activities. In short, efforts are dedicated to changing the factors wherein neglect, paucity, and indirection historically have stifled the early interest in science and mathematics shown by students with disabilities, and that impede the advancement of these individuals as they prepare themselves for careers in SMET fields.

Organizations eligible to submit proposals to promote these goals include universities and colleges; nonprofit, nonacademic institutions (including museums, professional associations, and community-based organizations); state and local governments (including school districts); and for-profit research institutions and businesses. The Foundation encourages proposals which serve to build or strengthen alliances among eligible organizations.

Although the Programs in HRD focus primarily on underrepresented communities, all NSF programs encourage proposals with a similar focus. See *Guide to Programs* (NSF 97-30) for descriptions of all NSF funding opportunities.

PROJECT CATEGORIES

Demonstration Projects

The Foundation supports the design and conduct of special Demonstration Projects that design, implement and evaluate innovative intervention strategies. The goal of these strategies should be to reduce the barriers that inhibit the interest, participation, retention, and advancement on SMET educational and career tracks of students with disabilities. Demonstration Projects are not designed to provide continuing core support for an existing project. They are designed to produce information that will lead to significant and immediate changes in SMET education for persons with disabilities.

Prospective proposers are strongly encouraged to give specific attention in the design of projects to the critical issues that hinder the inclusion and participation in SMET education of students with disabilities, and the successful retention of these students in pursuit of SMET careers. These issues include, but are not limited to:

- access to appropriate mathematics and science instructional materials, media, educational technologies, and laboratory experiences;
- availability of science enrichment activities through intra- and extracurricular hands-on SMET experiences;
- interaction with role models and mentors;
- inclusion and participation in elementary, secondary and undergraduate level mathematics and science courses;
- attitudes of pre-college teachers, counselors, and higher education faculty;
- guidance in SMET course selection; and
- career guidance.

Projects in this category should strive to demonstrate the effectiveness of strategies that improve participation of students with disabilities in SMET education. Examples of activities that are appropriate under this competition include, but are not limited to:

- examination of effective methods for teaching science or mathematics so that students with disabilities perform competitively with other students on their education level;
- adaptation of existing science or mathematics curricula so that they are appropriate for all students including those with disabilities (to be conducted collaboratively with the publisher to insure rapid dissemination of the new products);
- work to overcome stereotyping of persons with disabilities among parents, teachers, peers, and co-workers;
- provision of science enrichment activities for students with disabilities; and
- exploration of the maximum use of scientists with disabilities as mentors to improve the interest, performance, and retention of students with disabilities in SMET education;

Award Size and Duration

Demonstration Projects may be up to three years in length. Requests for one or two years are also acceptable. The Foundation recognizes that one year may not be sufficient to conduct a project, complete necessary analysis, and prepare reports for dissemination. A budget request of up to \$150,000 per year is allowed.

Deadlines

Brief preliminary proposals are required (please see page 5 for details). Prospective proposers who do not submit a preliminary proposal are not eligible to submit in the formal competition. Preliminary proposals have a deadline of July 15. Formal

proposal packages must be received at NSF no later than October 1 of the current year.

Research and Development Projects

Physical disabilities may limit access to facilities, laboratories and operation of instrumentation. Similarly, sensory and cognitive disabilities may limit access to the customary presentation of pictorial, textual, and graphical information and data. For people with physical disabilities, appropriate technology often can provide access to the operation of instrumentation. People with sensory or cognitive disabilities may use appropriate technology to access information. Technology has been particularly important in providing access to scientific laboratories and information for students with disabilities. Students with visual or cognitive disabilities may use technology to provide access to the presentation of scientific information and higher level mathematics. Auditory presentations of information create a barrier to learning for students who are deaf or hard-of-hearing and for individuals with some forms of cognitive disabilities. Proposals designed to provide improved learning opportunities in SMET education for students with disabilities through the development of innovative technology are accepted by the NSF Program for Persons with Disabilities. Proposals in this competition must include the following components:

- identification of a task or information that cannot be performed or perceived by students who have a disability;
- description of alternative means by which the identified problem can be resolved;
- methods by which the alternative technique or technology can be produced and evaluated for its reliability;
- documentation of the participation of individuals with expertise in essential disciplines (i.e., technical, science education, special needs of students with disabilities).
- description of the disability to be addressed and assurance that students with the disability will be active participants at all

phases of the research, development and evaluation processes; and

- means by which the innovative technique or technology will be disseminated widely.

Award Size and Duration

Research and Development Projects may be up to three years in length. Requests for one and two years are also allowed. The Foundation recognizes that one year may not be sufficient to complete the proposed research, development, evaluation, and dissemination activities. A budget of up to \$200,000 per year is acceptable.

Deadlines

Brief, informal, preliminary proposals are required (please see page 5 for details). Prospective proposers who do not submit a preliminary proposal are not eligible to submit in the formal competition. Preliminary proposals have a deadline of July 15. Formal proposal packages must be received at NSF no later than October 1 of the current year.

Information Dissemination Projects

The Foundation encourages proposals that support innovative activities designed to disseminate and promote utilization of program results and to promote replication of successful strategies used to increase the recruitment, education, and retention in SMET education and career development of persons with disabilities. Audiences for Information Dissemination Activities include pre-college school counselors and science and mathematics teachers, college and university SMET faculty, and families of students with disabilities.

Activities to be supported include symposia, workshops, and the development of informational materials and media that (1) present information on techniques, instructional materials, technologies, and adaptations that promote full inclusion and participation in SMET curricula by students with disabilities, or (2) inform the scientific and educational communities and the general public of the potential in SMET of persons with disabilities.

Proposals for Information Dissemination Activities should include:

- a statement of the need, the intended outcomes, and the expected national and/or regional impact of the activity;
- a description of the Activity and appropriate bibliographic references;
- names and qualifications of key personnel involved in the Dissemination Activity;
- estimates of the number of participants and their description; and
- information about the location and probable date(s) of meetings (if applicable) and the method of announcement or invitation.

Grants are limited to \$100,000 per year for a maximum of two years. Budgets for workshops may include participant support for transportation, subsistence and other conference-related costs. Funds may be requested for the publication of proceedings. Support from other agencies or contributors should be identified.

Deadlines

Brief, informal, preliminary proposals are required (please see page 5 for details). Prospective proposers who do not submit a preliminary proposal are not eligible to submit in the formal competition. Preliminary proposals have a deadline of July 15. Formal proposal packages must be received at NSF no later than October 1 of the current year.

Institutionalization of Experimental Projects

A special competition is offered by the Program for Persons with Disabilities for institutions that previously received awards for Experimental Projects in Science, Engineering and Mathematics for Persons with Disabilities. This competition is designed to promote institutionalization of activities and techniques identified during the prior award that proved to stimulate increased participation and retention in SMET education of students with disabilities. Proposals in this competition must describe in detail prior activities that have proved

successful in increasing participation of students with disabilities in SMET education. (Proposers need not restrict this discussion to the five pages or less required by the Foundation for the description of prior NSF-funded activities.) Proposers should emphasize the methods to be used to insure continuation of the activities that have resulted in increased participation in SMET education by students with disabilities. Questions that should be addressed in the proposal include, but are not limited to: What activities, techniques, and technologies used and evaluated during the Experimental Project period will be continued and potentially expanded in the future? How will they be staffed? Who will provide funding for these activities and personnel? What methods will be used to assess the goal of institutionalizing the components introduced in the Experimental Project?

Award Size and Duration

Awards made under the Institutionalization of Experimental Projects competition may be three years in duration. The Foundation expects that during the three years, both institution and other sources of funding will permit the continuation of activities begun with NSF/PPD monies. The maximum Foundation award will be reduced annually as non-Federal cost-sharing is increased and documented, indicating achievement of the institutionalization process. The proposal may request an NSF award of up to \$400,000 for Year One, \$300,000 for Year Two, and \$200,000 for Year Three.

Deadlines

Brief, informal, preliminary proposals are required (please see page 5 for details). Prospective proposers who do not submit a preliminary proposal are not eligible to submit in the formal competition. Preliminary proposals have a deadline of July 15. Formal proposal packages must be received at NSF no later than October 1 of the current year.

PROJECT COMPONENTS

All proposals submitted to the National Science Foundation under the PPD competitions are required to have both an evaluation and an information dissemination component. The evaluation section of

the proposal should include a methodologically sound and realistic plan that states the objectives or critical evaluation questions, the personnel needed to perform evaluation tasks, the types of data to be collected and analyzed, the methods to be used, and a time line for these activities. (Both quantitative and qualitative measures should be considered.) The narrative also should describe how the information collected will be used to monitor project implementation, measure project outcomes and determine project success in light of program goals and objectives.

The proposal must provide a comprehensive plan for dissemination of the strategies or products developed and tested in the project or activity to promote broad adoption and use of results found to lead to increased participation of students with disabilities in SMET education and career development.

When applicable, proposers with prior NSF-support are required to include up to five pages in the proposal narrative describing prior NSF support. (See the NSF *Grant Proposal Guide* (GPG), NSF Publication 95-27, for detailed information.)

FOUNDATION-WIDE EFFORTS

Facilitation Awards for Scientists and Engineers with Disabilities

The Foundation offers Facilitation Awards for Scientists and Engineers with Disabilities (FASED) to provide students and faculty with disabilities special equipment and services needed to reduce or remove barriers to participation in research and training activities supported by NSF. These activities encourage persons with disabilities to pursue careers in science and engineering by stimulating the development and demonstration of special equipment that facilitates their work performance.

Single copies of the announcement (NSF 91-54) describing FASED activities can be obtained at no cost from the NSF Forms and Publication Unit (703)306-1130, or via Internet e-mail (pubs@nsf.gov), or by calling the PPD Program at (703)306-1636.

Guidelines for proposal preparation and general information on proposal evaluation and grant

administration are contained in the *Grant Proposal Guide* (NSF 95-27). Foundation programs are described in the *NSF Guide to Programs* (NSF 97-30) or the current year issue. These publications may be obtained without cost by calling (703) 306-1130; by writing to: Publications Unit, National Science Foundation, 4201 Wilson Blvd., Arlington, Virginia 22230; or by accessing NSF's World Wide Web site at <http://www.nsf.gov>.

PROPOSAL DEVELOPMENT and PROCESSING

Preliminary Proposals

Brief, informal preliminary proposals should identify a need, describe activities to be performed, methods proposed for project evaluation, dissemination plans, and a budget summary. They should have a maximum of five (5) single-spaced pages, and should **not** use the NSF standard cover page. Review of these preliminary proposals will provide an opportunity for NSF staff to determine proposal eligibility and to comment on the appropriateness of proposal content, focus, scope, and target population.

Proposers are strongly encouraged to discuss proposed projects with the program officers for Persons with Disabilities prior to submission of preliminary proposals by calling (703) 306-1636. Proposers will be notified in writing within four weeks whether they are invited to submit a formal proposal. Prospective proposers who do not submit a preliminary proposal are not eligible to submit in the formal competition. Preliminary proposals have a deadline of July 15.

An original, with one copy, should be sent to:
Program Staff, Program for Persons
with Disabilities
DHRD, Room 815
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

Formal Proposals

Narrative

The deadline for all formal proposals being submitted to the Program for Persons with

Disabilities is October 1 of the current year. Formal proposals should include the project description components as described below. Awards will be made by April 1.

Except as modified by the guidelines set forth in this document, standard NSF guidelines on proposal preparation, submission, evaluation, awards, declinations, and withdrawals contained in the *Grant Proposal Guide* (GPG) (NSF 95-27) are applicable. In particular, proposers should note that the Project Description is strictly limited to fifteen (15) pages; thirty (30) double-spaced pages are not acceptable. Appendices may be included, but should not include extraneous materials. Appendices should be limited to brief curriculum vitae and letters of commitment to document collaborative arrangements of significance described in the Project Description portion of the proposal. Proposers should be judicious in this regard as NSF leaves to individual reviewer discretion what part of the appendices, if any, should be read.

Where multiple organizations are involved, the proposal can only be submitted by one of them. It should describe clearly the role to be played by the other organizations, and should specify the managerial arrangements contemplated. If all or part of the project will be performed off-campus or away from organizational headquarters, a rationale should be provided.

The Project Description section for proposals submitted to the Program for Persons with Disabilities must include:

- goals and objectives;
- project design, including a demonstration of understanding of previous research and projects; anticipated impact of the project; planned products or publications; time line for activities; and dissemination strategies;
- description of participant recruitment and selection;
- evaluation and assessment plan;
- qualifications of staff (and list of advisory committee members, if applicable);

- description of participating organizations (and their responsibilities); letters of agreement must be included in the appendices; and
- planned products or publications;
- discussion of the results of prior NSF award if received within the last five years (see page 5 of the GPG for further clarification).

Proposal review and processing normally takes six months.

Budget

NSF has specific provisions regarding allowable costs for salaries and wages, indirect costs, fringe benefits, equipment purchases, participant support costs, tuition remission, consultant services, subawards, etc. In general, the projects and activities supported by the Program for Persons with Disabilities are subject to these provisions as stated in the *Grant Proposal Guide* (GPG) (NSF 95-27). Proposers must follow the stated provisions in preparing the budgets for these Projects and Activities. Note that:

- indirect costs will not be paid on participant costs, as per NSF policy; and
- funds should be included for the lead principal investigator to attend a two-day meeting in the Washington, DC Metropolitan area.

Proposers should follow institutional guidelines regarding per diem allowances or, in the absence of such policies, use the current Federal government daily rate.

For multi-year projects, a summary budget should be provided, as well as separate budgets for each year. In addition to these forms, up to three (3) pages of budget justification should be included. The need for each item should be explained clearly.

PROPOSAL REVIEW

Proposals will be reviewed using the standard criteria (see Criteria in the GPG), plus the following criteria, as appropriate:

- demonstrated understanding of the research and programmatic knowledge base related to persons with disabilities in SMET;
- potential to impact a broader audience through dissemination of the model;
- appropriateness of the evaluation and dissemination plans; and
- effectiveness of the plan for recruiting and selecting participants.

PREPARATION and SUBMISSION OF PROPOSALS

Proposals submitted to NSF must be prepared and submitted in accordance with the guidelines provided in the appropriate program solicitation or announcement and the general NSF guidelines in the GPG (NSF 95-27). Single copies of this brochure are available at no cost from the Forms and Publications Unit, phone (703)306-1130, or via Internet e-mail (pubs@nsf.gov) or by accessing NSF's World Wide Web site at <http://www.nsf.gov>.

The program or activity acronym (e.g., PPD) must be clearly listed on the mailing label and on the cover sheet.

Ten (10) copies of each proposal, including one copy bearing original signatures, and a disk with the text in **MS DOS (ASCII) TEXT FILE** should be mailed to:

ANNOUNCEMENT NO 97-85
 NATIONAL SCIENCE FOUNDATION
 PPU Room P60
 4201 Wilson Blvd.
 ARLINGTON, VA 22230

Put the program or activity acronym, if one is used, after the NSF announcement number, without additional punctuation; for example
 ANNOUNCEMENT NO. NSF 97-85 PPD.

Proposals will be reviewed by experts selected from the SMET research and/or education community. Special efforts will be made to secure reviews from individuals with strong records of achievement in the proposed area. Final award determination will be made by program staff and will reflect both reviewer comments and program priorities.

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