This document has been archived.

Research in Disabilities Education (RDE)

PROGRAM SOLICITATION
NSF 09-508

REPLACES DOCUMENT(S):
NSF 08-527

National Science Foundation

Directorate for Education & Human Resources
Division of Human Resource Development

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

February 18, 2009

Alliances for Students with Disabilities in STEM

February 18, 2009

Demonstration, Enrichment or Dissemination

February 24, 2009

Innovation through Institutional Integration

February 26, 2009

Research

August 25, 2009

Innovation through Institutional Integration

February 03, 2010

First Wednesday in February, Annually Thereafter

Alliances for Students with Disabilities in STEM

February 10, 2010

Second Wednesday in February, Annually Thereafter

Demonstration, Enrichment or Dissemination

February 17, 2010

Third Wednesday in February, Annually Thereafter

Research

April 07, 2010

Innovation through Institutional Integration

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), NSF 11-1, was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in NSF 11-1 apply to proposals submitted in response to this funding opportunity. Proposers who opt to submit prior to January 18, 2011, must also follow the guidelines contained in NSF 11-1.

Cost Sharing: The PAPPG has been revised to implement the National Science Board's recommendations regarding cost sharing. Inclusion of voluntary committed cost sharing is prohibited. In order to assess the scope of the project, all organizational resources necessary for the project must be described in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Mandatory cost sharing will only be required when explicitly authorized by the NSF Director. See the PAPP Guide Part I: *Grant Proposal Guide (GPG)* Chapter II.C.2.g(xi) for further information about the implementation of these recommendations.

Data Management Plan: The PAPPG contains a clarification of NSF's long standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: http://www.nsf.govbfa/dias/policy/dmp.jsp. See
Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

Postdoctoral Researcher Mentoring Plan: As a reminder, each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals.

Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

Revision Notes:

RDE program revisions include a renaming of the *Regional Alliances for Persons with Disabilities in STEM (RDE-RAD)* track to the *Alliances for Students with Disabilities in STEM* track, and renaming the *Focused Research Initiatives (RDE-FRI)* track to the *Research* track. Changes to the Research track include a revised budget limit of $450,000. Changes to the Demonstration, Enrichment or Dissemination track include a revised budget limit of $200,000.

A track for *Innovation through Institutional Integration (I^3)* is included. I^3 challenges faculty, administrators and others in institutions to think strategically about the creative integration of NSF-funded awards and is itself an integrative, cross-cutting effort within the Directorate for Education and Human Resources (EHR). For Fiscal Year 2010, proposals are being solicited in nine EHR programs that advance I^3 goals:

Centers of Research Excellence in Science and Technology (CREST)

Research on Gender in Science and Engineering (GSE)

Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)

Innovative Technology Experiences for Students and Teachers (ITEST)

Alliances for Broadening Participation in STEM: Louis Stokes Alliances for Minority Participation (LSAMP)

Math and Science Partnership (MSP)

Robert Noyce Teacher Scholarship Program

Research in Disabilities Education (RDE)

Tribal Colleges and Universities Program (TCUP)

All proposals submitted to I^3 through these programs have a common due date and will be reviewed in competition with one another. Eligibility is limited to institutions of higher education (including two- and four-year colleges). If the proposal is exclusively for I^3 STEM educational or related research, then all categories of proposers identified in the NSF Grant Proposal Guide are eligible to submit. Given the focus on institutional integration, an institution may submit only one proposal to this competition.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Research in Disabilities Education (RDE)

Synopsis of Program:

The *Research in Disabilities Education (RDE)* program seeks to broaden the participation and achievement of people with disabilities in all fields of science, technology, engineering, and mathematics (STEM) education and associated professional careers. The RDE program has been funding this objective since 1994 under the prior name "Program for Persons with Disabilities." Particular emphasis is placed on contributing to the knowledge base by addressing disability related differences in secondary and post-secondary STEM learning and in the educational, social and pre-professional experiences that influence student interest, academic performance, retention in STEM degree programs, STEM degree completion, and career choices. Projects also investigate effective practices for transitioning students with disabilities across critical academic junctures, retaining students in undergraduate and graduate STEM degree programs, and graduating students with STEM associate, baccalaureate and graduate degrees. Research project results inform the delivery of innovative, transformative and successful practices employed by the Alliances for Students with Disabilities in STEM to increase the number of students with disabilities completing associate, undergraduate and graduate degrees in STEM and to increase the number of students with disabilities entering our nation's science and engineering workforce. RDE projects contribute to closing the gaps occurring for people with disabilities in STEM fields by successfully disseminating findings, project evaluation results, and proven good practices and products to the public.

Innovation through Institutional Integration (I^3) projects enable faculty, administrators and others in institutions to think and act strategically about the creative integration of NSF-funded awards, with particular emphasis on awards managed through programs in the Directorate for Education and Human Resources (EHR), but not limited to those awards. For Fiscal Year 2010 proposals are being solicited in nine EHR programs that advance I^3 goals: CREST, GSE, HBCU-UP, ITEST, LSAMP, MSP, Noyce, RDE, and TCUP.

Cognizant Program Officer(s):

- Mark H. Leddy, Program Director, telephone: (703) 292-4655, fax: (703) 292-9018, email: mleddy@nsf.gov
- Linda P. Thurston, telephone: (703) 292-4612, email: lthursto@nsf.gov
- Corey Hynson, Office Automaton Clerk, 815N, telephone: (703) 292-4965, email: chynson@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 8 to 24 awards per year depending on the availability of funds with a mix of awards for the Alliances for Students with Disabilities in STEM track, the Research track, and the Demonstration, Enrichment, or Dissemination track. Up to 10 continuing awards will be made in this Innovation through Institutional Integration competition, pending availability of funds, for FY 2010.

Anticipated Funding Amount: $3,000,000 in each year for new awards in all RDE program tracks pending availability of funds. $5,500,000 for for Innovation through Institutional Integration (I3) projects across multiple EHR programs pending availability of funds.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- For the Alliance, Research and Demonstration, Enrichment or Dissemination tracks: Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities, and universities and colleges: U.S. universities and two- and four-year colleges (including community colleges).

  Eligibility for Innovation through Institutional Integration (I^3) is limited to institutions of higher education (including two- and four-year colleges) accredited, and having a campus located in the US. If the proposal is exclusively for I^3 STEM educational or related research, then all categories of proposers identified in the NSF Grant Proposal Guide are eligible to submit.

PI Limit:

None specified for the Alliance, Research and Demonstration, Enrichment or Dissemination tracks.

The Principal Investigator for an Innovation through Institutional Integration (I^3) proposal must be the university provost or equivalent chief academic officer, unless the proposal is exclusively for I^3 STEM educational or related research.

Limit on Number of Proposals per Organization:

None specified for the Alliance, Research and Demonstration, Enrichment or Dissemination tracks.

For Fiscal Year 2010, proposals are being solicited in nine EHR programs that advance the goals of Innovation through Institutional Integration (I^3): CREST, GSE, HBCU-UP, ITEST, LSAMP, MSP, Noyce, RDE, and TCUP. Given the focus on institutional integration, an institution may submit only one proposal to the I^3 competition for each deadline.

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:** Not applicable.
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  February 18, 2009

  Alliances for Students with Disabilities in STEM

  February 18, 2009

  Demonstration, Enrichment or Dissemination

  February 24, 2009

  Innovation through Institutional Integration

February 26, 2009

Research

August 25, 2009

Innovation through Institutional Integration

February 03, 2010

First Wednesday in February, Annually Thereafter

Alliances for Students with Disabilities in STEM

February 10, 2010

Second Wednesday in February, Annually Thereafter

Demonstration, Enrichment or Dissemination

February 17, 2010

Third Wednesday in February, Annually Thereafter

Research

April 07, 2010

Innovation through Institutional Integration

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

TABLE OF CONTENTS

Summary of Program Requirements

I. Introduction

II. Program Description

III. Award Information

IV. Eligibility Information

V. Proposal Preparation and Submission Instructions
- A. Proposal Preparation Instructions
- B. Budgetary Information
- C. Due Dates
- D. FastLane/Grants.gov Requirements

VI. NSF Proposal Processing and Review Procedures
- A. NSF Merit Review Criteria
- B. Review and Selection Process

VII. Award Administration Information
- A. Notification of the Award
- B. Award Conditions
- C. Reporting Requirements

VIII. Agency Contacts

IX. Other Information

I. INTRODUCTION

One of the National Science Foundation's (NSF) key strategic goals is to cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens (NSF Strategic Plan FY 2006-2011). Investments are directed at programs that strengthen scientific and engineering research potential and education programs at all levels. These outcomes are essential to the U.S. as we progress toward an increasingly technological job market and a scientifically complex society.

The Division of Human Resource Development (HRD) serves as the focal point for NSF's agency-wide commitment to broadening the participation of all individuals in STEM. HRD programs reflect NSF's commitment to developing the resources of the STEM

community as a whole and ensuring an adequately trained research and development workforce. To meet the challenges presented by the nation's increasing needs in STEM, the RDE program supports efforts to increase the success of people with disabilities in STEM education pathways and professional careers.

The RDE program seeks to broaden the participation and achievement of people with disabilities in all fields of STEM education and associated professional careers by contributing to the research knowledge base and increasing the number of students with disabilities completing associate, undergraduate and graduate degrees in STEM and entering our nation's science and engineering workforce. RDE projects contribute to closing the gaps occurring for people with disabilities in STEM fields by successfully disseminating findings, project evaluation results, and proven good practices and products to the public.

- **Research** projects contribute to the knowledge base by investigating disability related differences in secondary and post-secondary STEM learning and in the educational, social and pre-professional experiences that influence student interest, academic performance, retention in STEM degree programs, STEM degree completion, and career choices. Projects also investigate effective practices for transitioning students with disabilities across critical academic junctures, retaining students in undergraduate and graduate STEM degree programs, and graduating students with STEM associate, baccalaureate and graduate degrees. Projects may include student interventions, with or without a focus on accessible technology and cyberlearning, involving students as subjects only if the intervention is an integral part of gathering data and if the findings from the intervention would substantially answer the research questions posed within the context of theory and hypotheses. Results from research projects inform the delivery of innovative, transformative and successful practices employed by the Alliances for Students with Disabilities in STEM.

- **Alliances for Students with Disabilities in STEM** are projects designed to advance the number of students with disabilities completing associate, undergraduate and graduate degrees in STEM and to increase the number of students with disabilities entering our nation's science and engineering workforce. Alliances engage multiple institutions of higher education and secondary school systems to work as a team to employ evidenced-based practices and promising interventions to advance students across critical academic junctures, to degree completion, and into the workforce or graduate STEM degree programs.

- **Demonstration, Enrichment or Dissemination** projects are three distinct types of RDE awards: **Demonstration** projects are pilot investigations designed to offer proof-of-concept data for future RDE Research studies. **Enrichment** projects are test beds for establishing Alliances for Students with Disabilities in STEM and piloting the implementation of promising practices to advance students with disabilities completing associate, baccalaureate and graduate degrees in STEM and to increase the number of students with disabilities entering our nation's science and engineering workforce or graduate STEM degree programs. **Dissemination** projects communicate the research in disabilities education knowledge base, findings from RDE projects, and successful practices and products for advancing secondary and post-secondary students with disabilities in STEM.

- Proposals submitted to the **Innovation through Institutional Integration (I^3)** track would request support for projects that enable faculty, administrators and others in institutions to think and act strategically about the creative integration of NSF-funded awards, with particular emphasis on awards managed through programs in the Directorate for Education and Human Resources (EHR), but not limited to those awards. For Fiscal Year 2010, proposals are being solicited in nine EHR programs that advance I^3 goals: CREST, GSE, HBCU-UP, ITEST, LSAMP, MSP, Noyce, RDE, and TCUP.

II. PROGRAM DESCRIPTION

The Research in Disabilities Education (RDE) program's goal is to broaden the participation and achievement of people with disabilities in all fields of STEM by contributing to the research knowledge base and increasing the number of students with disabilities completing associate, undergraduate and graduate degrees in all STEM fields and entering our nation's science and engineering workforce. This solicitation requests proposals for new projects in each of the three RDE program tracks: Research, Alliances for Students with Disabilities in STEM, and Demonstration, Enrichment or Dissemination. This solicitation also requests proposals for new projects in the Directorate for Education and Human Resources track: Innovation through Institutional Integration.

A. PROGRAM PRIORITIES

- Increasing Student Success: Consistent with the primary goal of the RDE program, proposals are strongly encouraged that emphasize increasing the number and quality of students with disabilities who successfully enter post-secondary education in all areas of STEM, complete associate, undergraduate and graduate degrees in STEM, and enter graduate STEM degree programs or the nation's science and engineering workforce.
- Diverse Institutions of Higher Education: Proposals are strongly encouraged from institutions of higher education with a strong track record of graduating underrepresented minorities, women and students with disabilities in STEM fields.
- Institutions in EPSCoR Jurisdictions: Proposals are strongly encouraged from institutions within jurisdictions designated by the NSF's Experimental Program to Stimulate Competitive Research (EPSCoR).
- Collaborations with Current NSF Projects: Proposals are strongly encouraged that provide students with opportunities to participate in current NSF projects, or that use student data from existing NSF projects to investigate theory-driven disability research. These collaborations are encouraged with projects currently funded by NSF programs such as the RDE's Alliances for Students with Disabilities in STEM, Alliances for Graduate Education and the Professoriate (AGEP), Centers of Research Excellence in Science and Technology (CREST), Engineering Research Centers (ERC), Materials Research Science and Engineering Center (MRSEC), Nanoscale Science and Engineering Centers (NSEC), Science and Technology Centers (STC), and Science of Learning Centers.
- Independent Project Evaluation: Proposals are expected to include an independent project evaluation using rigorous formative and summative project assessments.

B. RESEARCH PROJECTS

The RDE program supports research studies contributing to the knowledge base by investigating disability related differences in secondary and post-secondary STEM learning and in the educational, social and pre-professional experiences that influence student interest, academic performance and retention in STEM degree programs, STEM degree completion, and student career choices. Projects may include student interventions, with or without a focus on accessible technology and cyberlearning, involving students as subjects only if the intervention is an integral part of gathering data and if the findings from the intervention would substantially answer the research questions posed within the context of theory and hypotheses. Research projects also investigate effective practices for transitioning students with disabilities across critical academic junctures, retaining students in undergraduate and graduate STEM degree programs, and graduating students with STEM associate, baccalaureate and graduate degrees. Results from research projects inform the delivery of innovative, transformative and successful practices employed by the Alliances for Students with Disabilities in STEM.

Successful proposals to the RDE program's Research track include pilot, or "proof-of-concept," data from prior

RDE-funded Demonstration projects or from other efforts. Proposals are preferred that incorporate relevant advances in research methodologies and theoretical models. They should capitalize on the development of new instrumental, computational, or statistical methods, models, and tools of observation and analysis. According to a recent National Research Council report educational research projects should:

1. Pose significant questions that can be investigated empirically;
2. Link relevant research to theory;
3. Use methods that permit direct investigation of the questions posed;
4. Provide a coherent and explicit chain of reasoning;
5. Replicate and generalize across studies; and
6. Disclose research to encourage professional scrutiny and critique.

(National Research Council. (2002). Scientific research in education. Committee on Scientific Principles for Education Research. Shavelson, RJ; Towne, L, (Eds.). Center for Education, Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press)

All RDE Research proposals should present the disciplinary and conceptual framework for the study. Successful proposals should include a discussion of the theory, or theories, grounding the research and specify testable hypotheses. The proposal should discuss in detail the methods used to test the hypotheses, and if a population sample is used, this should be described along with the rationale for sample selection, and the project's access to the sample population. The proposal should address whether the design is premised on special needs and interests due to educational level, race, ethnicity, economic status, or gender, in addition to disability, and to what extent data will be disaggregated for multiple demographic characteristics.

Proposals are strongly encouraged to use student data from existing NSF projects to investigate theory-driven disability research. These collaborations are encouraged with projects currently funded by NSF programs such as the RDE's Alliances for Students with Disabilities in STEM, Alliances for Graduate Education and the Professoriate (AGEP), Centers of Research Excellence in Science and Technology (CREST), Engineering Research Centers (ERC), Materials Research Science and Engineering Center (MRSEC), Nanoscale Science and Engineering Centers (NSEC), Science and Technology Centers (STC), and Science of Learning Centers.

It is critical for each proposal to include an independent project evaluation with rigorous methods for formative and summative project assessment. Proposers are referred to the solicitation section F. PROJECT EVALUATION for additional information.

The expected study results should be of sufficient significance to merit peer-review and publication. RDE Research proposals should address communicating findings to a national audience, particularly to education practitioners and researchers. Study results are expected to inform the work of the RDE Alliances for Students with Disabilities in STEM and mechanisms for sharing findings with the Alliance projects must be included in the proposal. It is important to show that the investigator is aware of appropriate channels -- specific peer-reviewed journals, publications, web sites, professional association conferences -- and is committed (including allocating resources) to ensure the community will benefit. A replication manual for the research project is strongly recommended, as one of several project dissemination activities, so other investigators can replicate study findings.

Proposers are referred to specific proposal instructions in solicitation section V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS, A. PROPOSAL PREPARATION INSTRUCTIONS, Full Proposal Preparation Instructions

C. **ALLIANCES FOR STUDENT WITH DISABILITIES IN STEM**

RDE Alliance projects establish innovative models of comprehensive, multidisciplinary networks of high schools, 2- and 4-year undergraduate institutions, and graduate programs designed to employ proven practices and promising interventions to broaden the participation of secondary and post-secondary students with disabilities in all STEM fields. Alliances use evidence-based practices, as well as beta-testing novel interventions, to increase the quality and quantity of students with disabilities completing associate, baccalaureate and graduate degrees in STEM disciplines and entering either STEM graduate degree programs or our nation's science and engineering workforce. Alliance proposals develop a unified program of change extending beyond academia to include industry and government research experiences for students with disabilities.

The structure and content of proposed projects should be governed by organizational capabilities of the primary institutions, strategies for the formation of the alliance, and characteristics of specific localities. Project specifics may encompass a wide variety of activities. The project activities must form a feasible, logical, comprehensive and unified program of change focused upon improving the STEM educational experiences and performance of students with disabilities, contributing to student completion of STEM degrees, and facilitating successful transitions to graduate school STEM programs or the science and engineering workforce. While the primary focus of Alliance projects is at the undergraduate level, the focus may also be at the graduate level, and all projects must include activities that affect student advancement through the critical transition points during STEM education (e.g., from high school to college, between 2- and 4-year colleges, from undergraduate STEM degree programs to the workplace, from undergraduate to graduate STEM degree programs, and from graduate school to industry or academia). Proposers are strongly encouraged to submit collaborative proposals to demonstrate the commitment of all Alliance post-secondary institutions to the unified program of change. When selecting project partners for an alliance, proposers may want to consider the results from a series of retrospective studies of NSF projects indicating the characteristics of successful coordination and project outcomes: Cummings, J.N., Kiesler, S. (2005), Collaborative Research Across Disciplinary and Organizational Boundaries, Social Studies of Science, 35 (5), 703-722; and Cummings, J.N., Kiesler, S. (2007), Coordination Costs and Project Outcomes in Multi-University Collaborations, Research Policy, 36 (10), 138-152.

The ideal Alliance management team is led by one or two key personnel with experience managing federally-funded projects and who are experts in appropriate fields (e.g., special education, STEM education, secondary and post-secondary education, social sciences, disability studies or disciplines closely related to disabilities). These leaders will engage a team with expertise in STEM disciplines, STEM secondary and post-secondary education, secondary special education, post-secondary disability services, and project evaluation. A strong management team with a robust network of experts is essential to the success of the Alliancenbsp; Collaborations with existing NSF-funded projects is likely to provide the project with access to cohorts of secondary and post-secondary students already engaged in STEM education and research experiences, to offer the project access to student recruitment mechanisms, and to broaden research experiences for students with disabilities in STEM.

Successful proposals must include a logical and reasonable explanation of all evidence-based, proven, promising or innovative student interventions, strategies for student success, and mechanisms for facilitating student degree completion and entry into advanced academic study or the STEM workforce. Linking these interventions to specific student transitions across critical academic junctures is strongly encouraged.

Alliance proposals must include baseline data about current and/or future project participants as projects must demonstrate short-term and long-term improvements in the quality of student performance and increases in the numbers of undergraduate and graduate STEM students with disabilities completing degrees and entering graduate STEM programs or the STEM workforce. Reporting data on the current number of students with disabilities enrolled in STEM degree programs at all of the Alliance institutions, and the number of students with disabilities who have recently completed STEM degrees, will provide a baseline for proposers to measure these increases. If current data are not available, then proposers are encouraged to reconsider proposal submission until baseline data are available, to submit a RDE Enrichment proposal to collect the data while piloting an Alliance model, or to provide a detailed explanation of how baseline data will be collected and reported if an award were made without baseline data. A detailed data-tracking system must be proposed for reporting changes in student demographics, STEM academic performance, participation in STEM research, transitions across critical academic and professional junctures and STEM degree completion. The inclusion of an independent evaluation team to validate data collection and analysis, as well as to perform extensive formative and summative project assessment, is critical to a successful Alliance proposal. Proposers are referred to the solicitation section F. PROJECT EVALUATION for additional information.

Proposers are referred to specific proposal instructions in the solicitation section V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS, A. PROPOSAL PREPARATION INSTRUCTIONS, Full Proposal Preparation Instructions.

D. **DEMONSTRATION, ENRICHMENT OR DISSEMINATION**

The RDE program supports projects in the distinct areas of demonstration, enrichment and dissemination, and these three project types are significantly different from each other. While different in purpose, these projects, like all RDE projects, rest on strong intellectual merit and broad impacts with an expert project management team, a well designed research, enrichment or information diffusion plan, and a robust independent formative and summative evaluation. Proposers are referred to the solicitation section F. PROJECT EVALUATION for additional information about independent formative and summative project assessment. Proposers are also referred to specific proposal instructions in the solicitation section V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS, A. PROPOSAL PREPARATION INSTRUCTIONS, Full Proposal Preparation Instructions. Further description about each of the three project types follows:

Demonstration projects are pilot investigations designed to offer "proof-of-concept" data for future RDE Research studies. The RDE Demonstration projects are designed to lead to more extensive research studies that will contribute to the RDE knowledge base by investigating disability related differences in secondary and post-secondary STEM learning and in the educational, social and pre-professional experiences that influence student interest, academic performance, retention in STEM degree programs, STEM degree completion, and career choices. Demonstration projects may include student interventions, with or without a focus on accessible technology and cyberlearning, involving students as subjects only if the intervention is an integral part of gathering data and if the findings from the intervention would substantially answer the research questions posed within the context of theory and hypotheses. Demonstration projects also pilot investigations of effective practices for transitioning students with disabilities across critical academic junctures, retaining students in undergraduate and graduate STEM degree programs, and graduating students with STEM associate, baccalaureate and graduate degrees. Results from Demonstration projects may result in discoveries contributing to the RDE knowledge base and serve to provide data for future competitive RDE Research projects.

Enrichment projects are test beds for establishing Alliances for Students with Disabilities in STEM and piloting the implementation of promising practices to advance students with disabilities completing associate, baccalaureate and graduate degrees in all STEM disciplines and to increase the quality and number of students with disabilities entering our nation's STEM workforce or graduate STEM degree programs. Enrichment projects explore the use of innovative Alliances models and may serve as a mechanism for developing a tracking system to collect baseline data about current and/or future project participants as a basis for an Alliance proposal. Successful Enrichment proposals will report data on the current number of students with disabilities enrolled in STEM degree programs at the participating institutions, and the number of students with disabilities who have recently completed STEM degrees. Proposals should include student demographic data and target plans for enriching STEM academic performance, strategies for increasing student participation in STEM research, and interventions for supporting student transitions across critical academic and professional junctures. Toward, or after, the completion of the enrichment project the RDE strongly encourages project teams to submit a proposal to the RDE Alliance competition,; this outcome is expected to be identified in the Enrichment project's plan.

Dissemination projects successfully communicate the research in disabilities education knowledge base, findings from RDE projects, and practices and products for advancing secondary and post-secondary students with disabilities in STEM careers. Successful Dissemination projects utilize internet diffusion systems, public media networks, as well as innovative digital and print publications to provide educational information about what works and what does not to increase the quality and quantity of students with disabilities succeeding in high school, undergraduate and graduate STEM courses, completing high school degrees, transitioning from high school to post-secondary STEM degree programs, participating in undergraduate and graduate STEM research experiences, completing associate, baccalaureate and graduate STEM degrees, transitioning from 2-year STEM programs to 4-year STEM degree programs or the STEM workforce, transitioning from baccalaureate STEM degree programs to graduate STEM degree programs or the STEM workforce, and transitioning from graduate STEM degree programs to the STEM workforce or professoriate. All dissemination projects must generate materials that are accessible to people with disabilities.

E. **INNOVATION THROUGH INSTITUTIONAL INTEGRATION**

Creativity, connectivity, integration, and synergy are keys to innovation and to developing human and institutional capacity to full potential. In both research and education, it is the forging of new links between ideas or methodologies that were previously disparate that frequently paves the way for innovation. When institutions optimize the benefits to be derived from the creative integration of intellectual perspectives or related domains of work, they create important opportunities for making progress on some of the most important scientific, technological, and educational challenges of our time. On individual campuses across the nation, for example, significant synergistic potential can be ignited when scholars and educators in related disciplines work together. Similarly, NSF awardees can harness new synergies by working together with other NSF-funded projects on their own campus or in close geographic proximity. When the results of these synergies are both compatible with and beneficial for the institution(s) involved, successful innovation can be created[i]. Past efforts at integration have shown that opportunities for synergy can be created most successfully when collaborative projects include:

- Clear support from senior administrators;
- A cogent plan of action that includes expectations and staff development;
- Open cross-institutional dialogue that is supported and encouraged;
- A common campus-wide vision and value system that stresses the importance of synergistic efforts;
- The formation of a campus network with a set of individuals who take ownership and provide leadership for the initiative[ii].

The campus network is an important aspect of successful collaboration at every stage of development and is critical to the sustainability and enhancement of created partnerships as well as the institutionalization of new

innovations. This network can (a) foster communication across the campus to encourage the formation and dissemination of new ideas, values, and learning; (b) serve as a source of leadership to promote and carry out integrative activities; and (c) develop and sustain existing connections while continually expanding collaborative efforts[iii].

Innovation through Institutional Integration (I^3) challenges faculty, administrators, and others in institutions to think strategically about the creative integration of NSF-funded awards towards a whole that exceeds the sum of its parts. Although there is particular emphasis in I^3 on awards managed by programs in the Directorate for Education and Human Resources (EHR), institutional integration is not limited only to EHR awards but can include other NSF awards with a STEM educational focus. Two or more institutions in geographic proximity might, for example, partner to bridge existing NSF-funded awards on their campuses (e.g., RDE, IGERT, LSAMP, ATE, CREST, REU) to broaden participation in STEM fields and enhance undergraduate research opportunities. Additional connections might be made internationally with faculty or students outside the United States who would add their considerable intellectual and cultural perspectives. As another example, an institution might implement new policies, procedures, or mechanisms that encourage and value synergistic efforts among existing NSF-funded awards (e.g., GK-12, MSP, Noyce, REESE, DRK-12) and with other institutional units to better understand and enhance seamlessness across critical educational junctures, perhaps infusing innovative approaches to cyber-learning.

This effort has the following interrelated goals:

- Increase synergy and collaboration across NSF-funded projects and within/between institutions, towards an educational environment where artificial boundaries are significantly reduced and the student experience is more fully integrated;
- Expand and deepen the impact of NSF-funded projects and enhance their sustainability;
- Provide additional avenues to broaden participation through workforce development, especially for those underrepresented in STEM research and education; attend to seamless transitions across critical educational junctures; and/or provide more effectively for a globally engaged workforce;
- Promote innovative programming, policies, and practices to encourage the integration of STEM research and education; and
- Encourage STEM educational or related research in domains that hold promise for promoting intra- or inter-institutional integration and broader impacts.

Proposals that facilitate either (a) inter-institutional or (b) intra-institutional efforts are encouraged. Proposals may be submitted by (a) a single institution to address intra-institutional goals only or (b) an institution acting on behalf of an institutional partnership to address inter-institutional goals.

Proposals are expected to incorporate a depth and quality of creative, coherent, and strategic actions that extend beyond commonplace approaches to normal institutional operations. Proposals may also be submitted for research on institutional integration or other closely related themes articulated in the goals above.

Innovation through Institutional Integration (I^3) is a cross-divisional effort in the Directorate for Education and Human Resources (EHR). For Fiscal Year 2010, proposals are being solicited in nine EHR programs that advance I^3 goals: CREST, GSE, HBCU-UP, ITEST, LSAMP, MSP, Noyce, RDE, and TCUP. All proposals submitted to I^3 through these programs have a common due date and will be reviewed in competition with one another.

F. PROJECT EVALUATION

All Research in Disabilities Education proposals should explore the use of benchmarks, indicators, logic models, roadmaps or other formative evaluative methods to document progress toward clearly stated project and project evaluation goals, objectives and outcomes defined in the proposal. All projects are expected to track and annually report in detail their accomplishment of proposed student performance and achievement targets. The budget MUST include resources for project evaluation and assessment.

Process, impact and outcome measures should be defined by the project and should rely on an appropriate mix of qualitative and quantitative measures. If a project includes the use of a research design to investigate an intervention component then the project is encouraged to use experimental and quasi-experimental designs that may include control, treatment or comparison groups.

Project evaluation should be led by an expert independent evaluation team and focus on the strategic impacts of project activities. Strategic impacts are lasting outcomes attributable to the project. Anticipated strategic impacts should be specific, realistic, measurable, and achievable through the project's research, educational activities and products.

Evaluation plans should be appropriate for the scope of the project. The use of an independent evaluation team is strongly advised. Proposals should include a plan to broadly disseminate information about the project, including aspects that are found to be effective and ineffective as a result of the project's formative and summative assessments.

The following references may be helpful in designing an evaluation plan:

- The 2002 User-Friendly Handbook for Project Evaluation (NSF 02-057)
- FOOTPRINTS: Strategies for Non-Traditional Program Evaluation (NSF 94-51)
- Online Evaluation Resource Library (http://oerl.sri.com).
- Evaluation Handbook, W.K. Kellogg Foundation (http://www.wkkf.org/Pubs/Tools/Evaluation/Pub770.pdf).

G. PROGRAM EVALUATION

Measuring the overall effectiveness of the NSF's Research in Disabilities Education program is important. The NSF provides federal policymakers in Congress and at the Office of Management and Budget (OMB) with evidence-based measures of all program impacts and effectiveness in accordance with the Program Assessment Rating Tool (PART) and the Academic Competitiveness Council (ACC). For an overview on PART visit Expectmore.gov. The Deficit Reduction Act of 2005 (P.L. 109-171) established the ACC. The statute charged the ACC to:

- Identify all federal programs with a mathematics or science education focus;
- Identify the effectiveness of those programs;
- Determine areas of overlap or duplication among those programs;
- Identify target populations served by such programs; and
- Recommend processes to efficiently integrate and coordinate those programs.

Individual projects funded through the RDE program are expected to cooperate with third-party program evaluators and respond to inquiries, interviews and other approaches for collecting evaluation data across individual awards. All projects should respond to and provide process information and findings, current data, and outcome data elements that may be summarized across projects to third-party program evaluators, NSF-funded contractors developing and maintaining data information systems for the RDE program, and the RDE program staff.

H. **REVIEWING PROPOSALS FOR THE RDE PROGRAM**

The Research in Disabilities Education program seeks to expand its reviewer pool. If you are project staff on a RDE proposal submitted in response to this solicitation, then you cannot be a panelist this year. If you did not submit a RDE proposal this year in response to this solicitation, you may volunteer to be a panelist. If you would like to volunteer, please send the appropriate information to the RDE Science Assistant, Tayana Casseus at tcasseus@nsf.gov. Include a biosketch or curriculum vitae and a brief description of your research expertise in your e-mail. RDE staff will contact you if your area of expertise is relevant and panelists are needed in your area.

I. **INFORMATION ABOUT PREVIOUS RDE AWARDS**

NSF's web site provides abstracts for, and other information about, awards made by this program under the current and prior program name ("Program for Persons with Disabilities"). NSF's web site provides the ability to search awards using custom queries. A customize query to find RDE awards includes the use of the RDE Element Code, which is 1545.

To find more specific awards, it is possible to narrow the search by, for example, using:

- Element Code: 1545 and Keyword: "mentoring"
- Element Code: 1545 and Keyword: "learning community"
- Element Code: 1545 and Keyword: "Washington"
- Element Code: 1545 and Keyword: "high school"

[i] Levine, A. (1980). Why Innovation Fails. New York: State University of New York Press. Pg. 160.

[ii] Kezar, A. (2003). Enhancing Innovative Partnerships: Creating a Change Model for Academic and Student Affairs Collaboration. *Innovative Higher Education* 28(2): 137-156.

[iii] Kezar, A. (2005). Redesigning for Collaboration within Higher Education Institutions: An Exploration into the Developmental Process. *Research in Higher Education* 46(7): 831-860.

III. AWARD INFORMATION

Anticipated funding for new grants in all RDE program tracks is $3,000,000 in each year, and $5,500,000 for Innovation through Institutional Integration projects across multiple EHR programs, pending the availability of funds.

Alliance proposals may request up to a total of $3,000,000 for five years, pending availability of funds. Continued funding in years four and five is contingent on satisfactory performance and availability of funds. Continued funding will be reduced or eliminated if performance is not satisfactory. The proposal should include a budget for each year and a cumulative budget. If subawardee institutions are partnering with the proposing institution, then the proposal should include subawardee budgets for each year and a cummulative budget for each institution.

Research proposals may request up to $450,000 for up to three years pending availability of funds. The proposal should include a budget for each year and a cumulative budget. If subawardee institutions are partnering with the proposing institution, then the proposal should include subawardee budgets for each year and a cummulative budget for each institution.

Demonstration, Enrichment or Dissemination proposals may request up to $200,000 for up to two years pending availability of funds. The proposal should include a budget for each year and a cumulative budget.

Awards for Innovation through Institutional Integration projects will be made for durations of up to five years, with years four and five dependent on performance, in amounts of up to $250,000 per year, for a total of up to $1.25 million over 5 years. Innovation through Institutional Integration awards will be made as continuing grants.

NSF expects to fund 1-2 Alliance proposals, 5-8 Research proposals, 2-14 Demonstration, Enrichment or Dissemination proposals per year, and up to 10 Innovation through Institutional Integration awards in this competition, depending on the quality of the submissions and availability of funds.

The proposed start dates for Alliance, Research, and Demonstration, Enrichment or Dissemination proposals should be at least seven months from the full proposal deadline.

Funds should be budgeted for the principal investigator to attend a four-day grantee meeting, held in the Washington, D.C. area, each award year.

Office equipment for project staff are expected to come from other sources.

Research projects are eligible for Research Experiences for Undergraduates (REU) supplements, which expressly support the participation of undergraduate students on the project research team, if funds are available. Please see the REU solicitation for complete parameters and the method for making a request for an REU supplement (see http://www.nsf.gov/home/crssprgm/reu/start.htm). Proposers should consult the Program Director in advance of a request for REU supplements.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- For the Alliance, Research and Demonstration, Enrichment or Dissemination tracks: Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities, and universities and colleges: U.S. universities and two- and four-year colleges (including community colleges).

  Eligibility for Innovation through Institutional Integration (I^3) is limited to institutions of higher education (including two- and four-year colleges) accredited, and having a campus located in the US. If the proposal is exclusively for I^3 STEM educational or related research, then all categories of proposers identified in the NSF Grant Proposal Guide are eligible to submit.

PI Limit:

None specified for the Alliance, Research and Demonstration, Enrichment or Dissemination tracks.

The Principal Investigator for an Innovation through Institutional Integration (I^3) proposal must be the university provost or equivalent chief academic officer, unless the proposal is exclusively for I^3 STEM educational or related research.

Limit on Number of Proposals per Organization:

None specified for the Alliance, Research and Demonstration, Enrichment or Dissemination tracks.

For Fiscal Year 2010, proposals are being solicited in nine EHR programs that advance the goals of Innovation through Institutional Integration (I^3): CREST, GSE, HBCU-UP, ITEST, LSAMP, MSP, Noyce, RDE, and TCUP. Given the focus on institutional integration, an institution may submit only one proposal to the I^3 competition for each deadline.

Limit on Number of Proposals per PI:

None Specified

Additional Eligibility Info:

The RDE program does not offer individual stipends, scholarships, or living expenses in direct support of individuals with disabilities. However, in some circumstances, individuals may qualify to apply for funding from RDE projects as identified in the proposal and sanctioned by the PI and his or her institutional sponsor. Additionally, funding is offered for special assistance or equipment to enable people with disabilities to work on NSF-supported projects through Facilitation Awards for Scientists and Engineers with Disabilities (FASED). Consult the guidelines presented in NSF 08-1 and refer to the Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparing FASED proposals.

Eligibility for Innovation through Institutional Integration (I^3) is limited to institutions of higher education (including two- and four-year colleges) located and accredited in the US, acting on behalf of their faculty members, unless the proposal is exclusively for I^3 STEM educational or related research. An institution may not receive more than one I^3 award.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

After selecting the RDE program solicitation number on the **COVER SHEET**, enter the program name the "NSF Unit Consideration" must be specified - selected either Research in Disabilities Education (RDE) or Innovation through Institutional Integration (I^3).

FOR RDE PROGRAM PROPOSALS

The **PROJECT SUMMARY** for all RDE program tracks:

- Restate the project Title, PI and PI Institution;
- **Address each NSF review criterion under separate headings: INTELLECTUAL MERIT and BROADER IMPACTS;**

- Briefly describe the proposed activity (what and how);
- Identify the specific project goal(s) and objective(s);
- Describe the research question (or hypothesis) and/or the expected impact on students with disabilities completing undergraduate and graduate degrees in STEM;
- Describe the target research subjects, audience, or community (who);
- State the names of partnering organizations and institutions (who);
- Highlight the contribution of the project to knowledge, social, or human capital (why).

The Alliances for Students with Disabilities in STEM proposal **PROJECT DESCRIPTION** should address:

- The scope of the service, in terms of geography, community, and intellectual specialization; the rationale for this scope (Why this scope? What are advantages, benefits, strengths?)
- Provide a detailed management plan and timeline of project activities with timelines for student progression across academic junctures and the interventions to ensure student success;
- Describe a unified program of change. How will proven practices, products, or curricula be chosen as part of the program? What is the evidence for the effectiveness of the selected models, approaches and activities?
- Describe the materials, interventions and strategies to be used in the proposed project.
- What is the relationship between the alliance partners and the community to be served?
- What expertise is on the alliance team? How are the senior personnel suited to the proposed scope of the project and what are their roles and responsibilities?
- Describe the methods for implementing the proven practices to increase the number of students with disabilities completing quality undergraduate and graduate degrees in STEM. What activities and products are planned for this community?
- What is the potential impact of this particular alliance over 3-5 years?
- Describe how the alliance will be networked with other educational improvement efforts, professional associations, and/or institutionalized at the partner campuses.
- Describe a plan for an independent formative and summative project evaluation including measures of project and project evaluation goals, objectives and outcomes.
- For prior grantees, include a discussion of the results of prior work.

The Research proposal **PROJECT DESCRIPTION** should address:

- What is the research question? What is the theoretical basis for the research?
- What are the study population and the plan to reach the population?
- What hypotheses will be tested? What findings are expected?
- What is the contribution to the knowledge base? Reference prior related work and explain the value added and the national benefit of the work.
- What methods will be used and why are these best for this project?
- Identify key team members, consultants, and advisors. Relate their qualifications and skills to specific components of the proposed work.
- Provide a detailed project timeline and management plan.
- How will the goals, objectives and outcomes of the project (including both broader impacts and intellectual merit) be measured by an independent evaluation team?
- For prior grantees, a discussion of the results of prior work.

The Demonstration, Enrichment, or Dissemination proposal **PROJECT DESCRIPTION** should address:

- Is this a demonstration, enrichment or information dissemination proposal?
- How will the project effectively disseminate information about products, pedagogical approaches, teaching and learning practices, and research for broadening the participation of people with disabilities in STEM fields; or
- How will the project focus on initial pilot, or proof-of-concept, research studies or activities to institutionalize accessible products and STEM educational materials; or
- How will planned enrichment activities enhance STEM learning experiences for students with disabilities to promote the success of undergraduate and graduate students in STEM education fields?
- What is the goal of the project, and what is the justification for it?
- What audiences will the project reach and what is the desired impact on the audiences?
- How does this project contribute to the RDE knowledge base and community of investigators?
- Describe the management plan and timeline.
- Describe the qualifications of key team members and suitability for their role in the project.
- Describe a plan for independent project evaluation including measures of project and project evaluation goals, objectives and outcomes.
- For prior grantees, include a discussion of the results of prior work.

REFERENCES CITED: All references cited in the Project Summary and Project Description should be listed in this section.

BIOSKETCHES: Biosketches for the PI, and for any Co-PI(s) and/or all senior personnel are required. Biosketches MUST follow the NSF guidelines outlined in the NSF Grant Proposal Guide and may not be longer than 2 pages per individual.

BUDGET AND BUDGET JUSTIFICATION: Budgets should be in NSF format and include up to three pages of budget justification for each institution's budget. The budget justification should include a detailed explanation of each line item with budget resources listed in the budget. Information about what may or may not be included in the budget or budget justification is outlined in the NSF Grant Proposal Guide.

FACILITIES AND EQUIPMENT: A list of current facilities and equipment to be used in the implementation of the project activities should be included in this section. It is helpful to the reviewers when proposers include information about the accessibility of facilities and equipment for students, faculty, staff and members of the public who have disabilities. Further information is available in the NSF Grant Proposal Guide.

SUPPLEMENTARY DOCUMENTS: Only those supplementary documents listed in the Grant Proposal Guide are allowed to be appended in the Supplementary Document section. Additional project description, examples of survey or interview protocols, past PI efforts, or other project-related materials are NOT ALLOWED.

FOR INNOVATION THROUGH INSTITUTIONAL INTEGRATION PROPOSALS

The proposal should articulate the project's vision, goals, and anticipated outcomes and describe how the project will achieve them. The proposal should draw on the existing, relevant base of literature and articulate how the plan of work is so informed. It is expected that implementation of the plan of work will impact participating NSF awards, as well as other relevant parts of the institution(s). The proposal should, therefore, address how the goals of the overall project are compatible with the goals of the individual integrated components, as well as how the project is both compatible with and beneficial for the host institution(s). The proposal should include a management/governance plan that describes who is responsible for what, a timeline, and an evaluation plan. All proposals must clearly demonstrate that the submitting team has the capability to manage the project, organize the work, and meet deadlines.

Each proposed implementation project in Innovation through Institutional Integration (I^3) should have an evaluation plan to assess progress and success in meeting project goals and objectives. An independent, external project-level evaluation is to be conducted to inform the institution and others of the progress and findings of the grant activities, especially those that address the project's synergistic activity (i.e., the value added by I^3). I^3 projects are expected to have baseline data, establish measurable targets, and collect evidence to determine annual progress and long-term outcomes. If applicable, it is highly desirable to establish a systematic plan to track student participants beyond their involvement in the project. Project-level evaluation should be designed to offer feedback for strengthening implementation over the course of the project, provide credible evidence to justify continued investment in the project, and report results (and describe models/paradigms) of institutional and/or disciplinary changes associated with the investment strategy.

Each I^3 project, as part of a national effort, is expected to cooperate in the monitoring and independent portfolio evaluation efforts conducted by NSF's contracted evaluators. While each project will propose its own types of specific qualitative and quantitative

measures, some later standardization of performance monitoring is anticipated so that NSF can conduct a summative/impact evaluation. The I^3 portfolio (summative/impact) evaluation will be designed to determine how effectively I^3 is contributing to the knowledge base, building a community of innovators, strengthening/advancing the higher education STEM infrastructure, and promoting collaborations that advance the goals of I^3.

Proposals for research must address one or more I^3 goals and discuss the current state of knowledge relevant to the project. This brief literature review should clearly inform the proposed research. The project description should identify the methods the project will use and explain why those methods are appropriate to the questions that the proposal addresses. Methodologies must be matched with strategic research questions, and the logic among research question, method, analysis, inference, and evidence should be well articulated.

The results of prior, relevant NSF investment(s), ***especially projects on which the proposed institutional integration is based***, are to be described and supported by data, along with a discussion of both successes and failures. The proposal should also clearly indicate how the intended work differs from, builds on, or is otherwise informed by prior efforts.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Indirect Cost (F&A) Limitations: Not applicable.

Other Budgetary Limitations:

Demonstration, Enrichment or Dissemination awards are standard grants of up to a total of $200,000 for up to 24 months duration.

Research awards are standard or continuing grants of up to a total $450,000 for up to 3 years duration.

Alliances for Students with Disabilities in STEM awards are continuing grants of up to a total of $3,000,000 for 5 years duration, with funding for years 4 and 5 depending on successful performance and availability of funds.

I^3 awards are continuing grants of up to $250,000 per year for up to five years, for a total of $1,250,000, with funding for years 4 and 5 depending on successful progress and availability of funds.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  February 18, 2009

  Alliances for Students with Disabilities in STEM

  February 18, 2009

  Demonstration, Enrichment or Dissemination

  February 24, 2009

  Innovation through Institutional Integration

  February 26, 2009

  Research

  August 25, 2009

  Innovation through Institutional Integration

  February 03, 2010

  First Wednesday in February, Annually Thereafter

  Alliances for Students with Disabilities in STEM

  February 10, 2010

  Second Wednesday in February, Annually Thereafter

  Demonstration, Enrichment or Dissemination

  February 17, 2010

  Third Wednesday in February, Annually Thereafter

  Research

  April 07, 2010

  Innovation through Institutional Integration

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

  Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

  Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must

electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **For Proposals Submitted Via Grants.gov:**

  Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: http://www.grants.gov/CustomerSupport. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

  Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf.

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

NSF staff also will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria:

In addition to the two NSF criteria for Intellectual Merit and Broader Impacts, special review criteria for the ***Research in Disabilities Education*** program tracks includes the degree to which the project is innovative.

In addition to the two NSF criteria for Intellectual Merit and Broader Impacts, special review criteria for ***Innovation through Institutional Integration (I^3)*** implementation projects are:

- The extent to which the proposed project addresses the interrelated goals for institutional integration and adds value to existing NSF awards.

- The extent to which there is a demonstrated track record of success for the existing NSF awards on which the proposed institutional integration is based.
- The degree of innovation in the proposed project as evidenced by a depth and quality of creative, coherent, and strategic actions that extend beyond commonplace approaches to normal institutional operations.
- The extent to which the proposed project addresses programming, policies, and practices commensurate with the sustained institutional change needed to seed and nurture appropriate, synergistic relationships among discrete NSF awards.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

Alliances for Students with Disabilities in STEM awards will be for 5 years in duration, with funding for years 4 and 5 depending on performance and availability of funds, as evaluated from annual reports, reverse site visit and site visit reports, and a mid-point panel review (during funding year 3). At the time of the mid-point panel review the project team must present a sustainability plan for the Alliance identifying how the project will continue at the end of 5 years when award funding ends. If performance is not satisfactory at any point during the award duration, continued funding will be reduced or eliminated.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational) publications; and, other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

See subsections F. Project Evaluation and G. Program Evaluation in Section II. Program Description.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Mark H. Leddy, Program Director, telephone: (703) 292-4655, fax: (703) 292-9018, email: mleddy@nsf.gov
- Linda P. Thurston, telephone: (703) 292-4612, email: lthursto@nsf.gov
- Corey Hynson, Office Automaton Clerk, 815N, telephone: (703) 292-4965, email: chynson@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.
- Corey Hynson, Office Automaton Clerk, 815N, telephone: (703) 292-4965, email: chynson@nsf.gov

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.
- Corey Hynson, Office Automation Assistant, Directorate for Education & Human Resources, Division of Human Resource Development, Room 815 N. Telephone: (703) 292-4965, fax: (703) 292-9018, email: chynson@nsf.gov

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the NSF web site.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230

- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

  Send an e-mail to: nsfpubs@nsf.gov

  or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records, " 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Division of Administrative Services
National Science Foundation
Arlington, VA 22230