

# ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers (ADVANCE)

---

## PROGRAM SOLICITATION

NSF 12-584

---

### REPLACES DOCUMENT(S):

NSF 10-593

---



National Science Foundation

Directorate for Education & Human Resources  
Division of Human Resource Development

Directorate for Biological Sciences

Directorate for Computer & Information Science & Engineering  
Division of Advanced Cyberinfrastructure

Directorate for Engineering

Directorate for Geosciences  
Division of Polar Programs

Directorate for Mathematical & Physical Sciences

Directorate for Social, Behavioral & Economic Sciences

Office of International and Integrative Activities

Letter of Intent Due Date(s) (**required**) (due by 5 p.m. proposer's local time):

October 05, 2012

Partnerships for Adaptation, Implementation and Dissemination (PAID)

October 04, 2013

Institutional Transformation (IT) and Institutional Transformation Catalyst (IT-Catalyst)

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

November 08, 2012

Partnerships for Adaptation, Implementation and Dissemination (PAID)

November 12, 2013

Institutional Transformation (IT) and Institutional Transformation Catalyst (IT-Catalyst)

## IMPORTANT INFORMATION AND REVISION NOTES

---

A revised version of the **NSF Proposal & Award Policies & Procedures Guide** (PAPPG), [NSF 13-1](#), was issued on October 4, 2012 and is effective for proposals submitted, or due, on or after January 14, 2013. Please be advised that the guidelines contained in [NSF 13-1](#) apply to proposals submitted in response to this funding opportunity.

Please be aware that significant changes have been made to the PAPPG to implement revised merit review criteria based on the National Science Board (NSB) report, [National Science Foundation's Merit Review Criteria: Review and Revisions](#). While the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria. Changes will affect the project summary and project description sections of proposals. Annual and final reports also will be affected.

A by-chapter summary of this and other significant changes is provided at the beginning of both the [Grant Proposal Guide](#) and the [Award & Administration Guide](#).

Please note that this program solicitation may contain supplemental proposal preparation guidance and/or guidance that deviates from the guidelines established in the [Grant Proposal Guide](#).

### Important Reminders

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.

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.gov/bfa/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.

## SUMMARY OF PROGRAM REQUIREMENTS

---

### General Information

---

Program Title:

ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers

Synopsis of Program:

For many decades, an increasing number of women have obtained STEM doctoral degrees, however, women, particularly women of color, continue to be significantly underrepresented in almost all STEM academic positions. While the degree of underrepresentation varies among STEM disciplines, women's advancement to senior professorial ranks and leadership roles is an issue in all fields. The underrepresentation of women is also a critical issue for the nation, at large, as its need to develop a globally competitive and diverse workforce increases.

Research has shown that women's representation and advancement in academic STEM positions are affected by many external factors that are unrelated to their ability, interest and technical skills (Spencer, et al, 1999; Halpern and Tan, 2001; Hyde, 2005; National Academy of Sciences, 2007). Such factors include, but are not limited to: stereotype threat, societal impacts, organizational constraints of academic institutions; differential effect of work and family demands; implicit and explicit bias; and lack of women in academic leadership and decision-making positions. The cumulative effect of such diverse factors has been to create infrastructural barriers that impact the number of women entering, persisting and advancing in STEM careers.

Thus, the goal of the ADVANCE program is to develop systemic approaches to increase the representation and advancement of women in academic STEM careers, thereby contributing to the development of a more diverse science and engineering workforce. ADVANCE also has as its goal to seminally contribute to and inform the general knowledge base on gender equity in the academic STEM disciplines.

To this end, ADVANCE will support the following types of projects:

Institutional Transformation (IT)

Institutional Transformation awards are expected to include innovative and systemic organizational approaches to transform institutions of higher education in ways that will increase the participation and advancement of women in STEM academic careers. These awards support comprehensive programs for institution-wide change. Additionally, IT projects must include a supplementary 5-page research study designed to investigate theory-driven models and innovations related to the participation and advancement of women in the academic STEM disciplines. It is expected that the research study will inform institutional transformation, or other relevant areas of academic investigation. Research that investigates novel aspects of the proposal is especially encouraged.

Previous or current funding from ADVANCE is not a prerequisite for submitting an IT proposal. Any institution meeting the minimum eligibility requirements may apply for an IT award (see Eligibility Information below).

Proposals for IT awards from community colleges, primarily undergraduate institutions, minority-serving institutions (e.g. Tribal Colleges and Universities, Historically Black Colleges and Universities, Hispanic-Serving Institutions, Native Hawaiian Serving Institutions), women's colleges, and institutions primarily serving persons with disabilities are strongly encouraged. It is anticipated that there may be significant differences in the issues facing faculty in these institutions, compared to faculty in other types of institutions, which will warrant development of unique strategies and/or adaptation of proven strategies in a unique way to achieve ADVANCE Program goals.

Institutional Transformation Catalyst (IT-Catalyst, formerly IT-Start)

IT-Catalyst awards are designed to support historically resource-challenged institutions in their efforts to conduct institutional self-assessment activities (i.e., data collection, data analysis, policy review) in order to identify specific issues in the recruitment, retention and promotion of women faculty in STEM disciplines. This area of work is considered fundamental for all institutions of higher education that plan to undertake institutional transformation.

The institution's need for external resources to undertake institutional self assessment and policy review will, specifically, be evaluated using additional ADVANCE merit review criteria. Institutions applying for IT-Catalyst awards are expected to demonstrate institutional need within the proposal. Such need should be unrelated to

recent national or state occurrences (e.g., decreased state funding, national economic disaster, etc.) unless an institution is disproportionately impacted by such circumstances. Institutions that are particularly encouraged to apply for the ADVANCE IT-Catalyst award include: primarily undergraduate institutions; institutions that have historically received lesser amounts of NSF research funding; minority serving institutions (e.g. Tribal Colleges and Universities, Historically Black Colleges and Universities, Hispanic-Serving Institutions, Native Hawaiian Serving Institutions); women's colleges; institutions primarily serving persons with disabilities; and institutions that have a Carnegie classification of master's colleges and universities, baccalaureate colleges, associate colleges or tribal colleges. Further, it is anticipated that there may be significant differences in the issues facing faculty in these institutions, compared to faculty in other types of institutions, which will warrant development of unique strategies and/or adaptation of proven strategies in a unique way to achieve ADVANCE Program goals.

Previous or current funding from ADVANCE is not a prerequisite for submitting an IT-Catalyst proposal. Any institution meeting the minimum eligibility requirements may apply for an IT-Catalyst award (see Eligibility Information below).

#### Partnerships for Adaptation, Implementation, and Dissemination (PAID)

Partnerships for Adaptation, Implementation, and Dissemination awards may focus on one institution or organization, or they may be a partnership between several institutions and/or organizations. PAID projects can focus on all STEM disciplines, several disciplines, or only one discipline, including the social and behavioral sciences. Projects may have an international, national, regional or local scope.

Previous or current funding from ADVANCE is not a prerequisite for submitting a PAID proposal. Any institution meeting the minimum eligibility requirements may apply for a PAID award (see Eligibility Information below).

Proposals for PAID awards from community colleges, primarily undergraduate institutions, minority-serving institutions (e.g. Tribal Colleges and Universities, Historically Black Colleges and Universities, Hispanic-Serving Institutions, Native Hawaiian Serving Institutions), women's colleges, and institutions primarily serving persons with disabilities are strongly encouraged. It is anticipated that there may be significant differences in the issues facing faculty in these institutions, compared to faculty in other types of institutions, that will warrant development of unique strategies and/or adaptation of proven strategies in a unique way to achieve ADVANCE Program goals.

#### Important Notes on ADVANCE Projects

ADVANCE does not support activities to increase or retain the number of women entering into or persisting in STEM doctoral degree programs; rather the program focuses on ensuring that women faculty consider academia as a viable and attractive career option. As such, no student training initiatives/activities should be proposed.

ADVANCE funds, in general, cannot be used to support dependent care costs. However, costs incurred by the awardee organization under employee morale and welfare for dependent-care expenses (daycare facilities or other child/elder care arrangements) may be allowed, provided these types of expenses are charged through the application of fringe benefits or indirect costs (also known as Facilities & Administrative Costs). Any such charges must be made in accordance with established awardee institutional policy as approved by the cognizant agency and consistently applied to both Federal and non-Federal sponsors. For more information on the allowability of dependent care costs, visit the following NSF website: <http://www.nsf.gov/pubs/2010/nsf10032/nsf10032.jsp?org=EHR>.

IT and PAID proposals are accepted on a biennial basis. For this solicitation, PAID proposals will be accepted in 2012; IT and IT Catalyst proposals will be accepted in 2013.

Special populations of women, for the purposes of the ADVANCE Program, include women of diverse characteristics and backgrounds including, but not limited to: race, ethnicity, disability status and sexual orientation.

Cognizant Program Officer(s):

*Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.*

- Beth Mitchneck, Program Director, 815N, telephone: (703) 292-5178, fax: (703) 292-9018, email: [bmitchne@nsf.gov](mailto:bmitchne@nsf.gov)
- Cynthia R. Douglas, Program Specialist, 815N, telephone: (703) 292-5175, fax: 703 292-9018, email: [cdouglas@nsf.gov](mailto:cdouglas@nsf.gov)

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

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.079 --- International and Integrative Activities (IIA)
- 47.081 --- Office of Experimental Program to Stimulate Competitive Research

## Award Information

---

Anticipated Type of Award: Standard Grant or Continuing Grant or Cooperative Agreement

Estimated Number of Awards: 22

The total number of awards to be made under this Solicitation is estimated to be 22. NSF expects to make: Approximately six (6) Institutional Transformation five-year awards, at various award sizes; Up to six (6) IT-Catalyst awards with durations of two years and total budgets of approximately \$200,000 each; and up to ten (10) PAID awards, of various durations, not exceeding a maximum of \$750,000 for 5 years.

Anticipated Funding Amount: \$9,900,000

Pending availability of funds, NSF anticipates having approximately \$9,900,000 available over the two fiscal year period FY 2013-FY2014 for support of the ADVANCE portfolio. Approximately \$4,600,000 will be available for the FY2013 competition and approximately \$5,300,000 will be available for the FY2014 competition.

## Eligibility Information

---

### Organization Limit:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

### PI Limit:

None Specified

### Limit on Number of Proposals per Organization: 1

Proposer organizations may submit only one Institutional Transformation proposal or one IT-Catalyst proposal. There is no limit on the number of PAID proposals that can be submitted.

### Limit on Number of Proposals per PI or Co-PI:

None Specified

## Proposal Preparation and Submission Instructions

---

### A. Proposal Preparation Instructions

- Letters of Intent: Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.
- 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](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](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: Not Applicable

### C. Due Dates

- Letter of Intent Due Date(s) (**required**) (due by 5 p.m. proposer's local time):
  - October 05, 2012  
Partnerships for Adaptation, Implementation and Dissemination (PAID)
  - October 04, 2013  
Institutional Transformation (IT) and Institutional Transformation Catalyst (IT-Catalyst)
- Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):
  - November 08, 2012  
Partnerships for Adaptation, Implementation and Dissemination (PAID)
  - November 12, 2013  
Institutional Transformation (IT) and Institutional Transformation Catalyst (IT-Catalyst)

## 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.

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. Merit Review Principles and 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

---

Women have earned a significant percentage of Ph.D.s in STEM disciplines in the US, increasing from 17% in 1976 to 41% in 2009, yet their representation in the academy has not wholly reflected these gains.<sup>1, 2</sup> The underrepresentation of women in academic faculty and administrative positions varies by professorial rank, type of institution, STEM discipline and type of appointment (i.e., tenure vs. non-tenure track, part time vs. full time), as well as by race and disability status.<sup>2, 3</sup>

It is widely accepted that many factors affecting women's participation and advancement in the academic STEM disciplines are not attributed to their ability, interest, or technical competencies.<sup>4</sup> In the National Academies Report, *Beyond Bias and Barriers*, factors such as department and institutional climate, structure, organization, salary equity, and culture were shown to negatively impact the representation of women in academic STEM positions.<sup>4</sup> This Report further identified the effects of implicit and explicit bias; conflicting demands between work and family; unequal access to resources; and lack of women in academic leadership and decision-making positions as also contributing to the lower proportion of women in professorial ranks of STEM faculties.<sup>4</sup> Additionally, in a recent study, Cech, et al. noted that yet another factor, the lack of professional role confidence of women, reduces the likelihood that women will persist in STEM careers.<sup>5</sup>

The cumulative effect of these adverse factors results in formidable barriers to the participation and advancement of women in academic STEM careers. However, the full participation of women and utilization of their talent is required for sustained US global competitiveness and innovation across all STEM fields (including, but not limited to arctic and antarctic sciences, biological sciences, computer and information sciences, engineering, geosciences, mathematics, physical sciences and social and behavioral sciences). It is also recognized that the full participation of women in academic STEM careers is important given the pivotal role that faculty members and administrative leadership have as intellectual, professional, personal, and organizational role models that shape the expectations of many prospective scientists and engineers. Persistent underrepresentation of women faculty, especially in leadership positions, may affect all students' critically important relationships with mentors, participation as members of research and education teams, and self-identification as potential researchers.<sup>6</sup>

The ADVANCE program provides support to address these and other identified challenges to increase the participation and advancement of women in academic faculty and leadership positions. ADVANCE is particularly interested in projects that include a focus on women from special populations, such as women of color and women with disabilities, as these populations are even more severely underrepresented in STEM academic careers and different strategies are required to address their low representation. The ADVANCE Program will make strategic investments in the development and implementation of institutional transformation strategies and social science research to increase the representation of women in the academic STEM disciplines.

### ADVANCE

The overall goal of the ADVANCE Program is to increase the representation and advancement of women in academic science and engineering careers, thereby developing a more diverse science and engineering workforce. Proposed strategies to achieve this goal are based on and justified by relevant theoretical frameworks that often include, but are not limited to:

- Organizational models and mechanisms of institutional transformation that lead to a STEM climate that is conducive to achieving gender equity;
- Structural and cultural factors, intrinsic and extrinsic to institutions of higher education and the STEM disciplines, that impact gender equity;

- The impact of intersectionality on gender equity in STEM fields;
- The differential impact of academic culture at different institution types (i.e., liberal arts institutions, minority serving institutions, community colleges) on gender equity;
- The structural and cultural factors, intrinsic and extrinsic to institutions of higher education and STEM disciplines, in particular, that impact academic STEM career choice and persistence;
- The overall impact of broadening participation of women in higher education.

1. Number of Doctorates Awarded Continue to Grow in 2009: Indicators of Employment Mixed Outcomes, National Science Foundation (NSF 11-305), 2010.

2. Women, Minorities, and Persons with Disabilities in Science and Engineering, National Science Foundation, 2012.

3. Science and Engineering Indicators, National Science Board, Two volumes. Arlington, VA: National Science Foundation (volume 1, NSB 08-01; volume 2, NSB 08-01A), 2008.

4. Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering, The National Academies Press, Washington, D.C., 2007.

5. Cech, E., Rubineau, B., Silbey, S. and C. Serond, Professional Role Confidence and Gendered Persistence in Engineering," American Sociological Review, 76:641-666, 2011.

6. Trower, C. and R. Chait, Faculty Diversity: Too Little for Too Long, Harvard Magazine, 104(4), 2002.

## II. PROGRAM DESCRIPTION

### PROGRAM DESCRIPTION

1. Institutional Transformation (IT): five-year, comprehensive, institution-wide, transformational projects.

Innovation: IT awards are expected to include innovative and systemic organizational approaches in order to increase the participation and advancement of women in STEM academic careers. The proposed strategies must be accompanied by a rigorous social science study.

Institutional Transformation awards are expected to include innovative systemic organizational approaches to transform institutions of higher education in ways that will increase the participation and advancement of women in STEM academic careers. These awards support comprehensive programs for institution-wide change. Additionally, IT projects must include a supplementary 5-page research study designed to investigate theory-driven models and innovations related to the participation and advancement of women in the academic STEM disciplines. It is expected that the research study will contribute to the knowledge base informing academic institutional transformation or other relevant areas of academic investigation. Research that investigates novel aspects of the proposal is especially encouraged.

Project Scope: IT projects are expected to be designed to achieve the transformation of all departments or schools of STEM fields within the institution, including the social, behavioral and economic sciences. Additionally, proposals that involve activities targeted toward special populations of women faculty must include current institutional data on this group, disaggregated by multiple characteristics (i.e., race, ethnicity, disability status, sexual orientation, etc.), as appropriate, in addition to gender.

ADVANCE projects should focus on activities that encourage the recruitment, retention and promotion of women faculty and academic administrators in STEM.

Project Activities: IT awards provide maximum flexibility to proposing institutions to define and implement systemic organizational approaches to increase the participation of women STEM faculty members; to promote their retention and advancement into the senior and leadership ranks; and to implement the changes necessary to institutionalize those approaches through changes to institutional policies, procedures and practices. The proposed strategies must be based on and justified by relevant social science research. Both men and women should be involved with the project implementation in order to maximally achieve the program goals; men and women should also be participants in project initiatives, as appropriate. IT awards can include efforts to promote globally engaged researchers and leaders, if appropriate, for achieving institutional transformation goals. IT awards should create positive, sustainable, and permanent change in academic climates by transforming institutional policies and practices systemically. An explanation of how activities providing direct financial support to individual faculty will lead to institutional transformation within the period of the award should be included as well as a plan for systematizing and sustaining the activities. Targeted efforts for special populations, such as underrepresented minority women and women with disabilities, are expected to include specific and uniquely-designed strategies tailored for these populations as well as relevant data.

Other activities associated with institutional transformation can include career-life balance strategies such as dual career hiring and STEM pathway re-entry. These strategies should be in line with the NSF Career-Life Balance (CLB) Initiative (<http://www.nsf.gov/career-life-balance/brochure.pdf>), which has as its goal to improve the advancement of women faculty by addressing the balance of a scientists' work with the conflicting demands of life events. CLB strategies are intended to serve individuals who demonstrate high potential to pursue academic STEM careers and who are suited to contribute to the work of the ADVANCE Program in a meaningful way. Institutions should consider CLB activities within institutional transformation efforts as an opportunity to establish strong, sustainable research capacity that is gender equitable. An institution seeking this support, through an IT award, is expected to adhere to institutional policies governing search and selection of STEM faculty, and provide a coherent career-development plan that describes specific research and professional development activities likely to improve the career status of new hires, such as a tenure-track position or other enhanced-status appointment.

Because of the exclusivity of strategies to be implemented for effective organizational change at any particular institution, IT partnership proposals are not allowed. Each Institutional Transformation project can include only one institution.

2. Institutional Transformation-Catalyst: two-year, institutional self-assessment projects.

Project Scope: IT-Catalyst projects are expected to be designed to assess all departments or schools of STEM fields within the institution, including the social and behavioral sciences. Additionally, proposals that involve activities targeted toward special populations of women faculty must include current institutional data on this group, disaggregated by multiple characteristics (e.g., race, ethnicity, disability status, sexual orientation), as appropriate, in addition to gender.

Project Activities: Institutions that seek to undertake institutional transformation must first understand what transformation is required, which is often informed by data collection and analysis, climate surveys, and review of institutional policies and practices. It is anticipated that a successfully completed IT-Catalyst project can serve as a springboard for embarking on full-scale institutional transformation.

A wide range of self-assessment activities may be undertaken as part of an IT-Catalyst project: data collection on STEM faculty at the institution with respect to indicators such as salaries, faculty recruitment and retention, faculty applicant pools, tenure and promotion outcomes; identification of resources to assist with recruitment, such as national pool data by discipline; review of institutional policies and their usage regarding work and life issues, climate surveys, and any other tools or indicators that capture the institution's current culture and environment. Both men and women should be involved with the project implementation in order to achieve the program goals; men and women should also be participants in project initiatives, as appropriate. Based on the results of the IT-Catalyst project, the awardee should be able to determine the most critical institutional transformation needs and formulate specific strategies and goals.

Because of the exclusivity of strategies to be implemented for effective organizational change at any particular institution, IT-Catalyst partnership proposals are not allowed. Each IT-Catalyst project can include only one institution.

3. Partnerships for Adaptation, Implementation and Dissemination (PAID): one- to five-year projects that support the ADVANCE program goals.

Partnerships: Proposals that are designed as partnerships among multiple institutions and/or organizations are encouraged, but a partnership design is not required. Partnerships may, for example, be between an existing ADVANCE awardee and new partners, or between two or more institutions or organizations that have not previously received an ADVANCE award. A PAID proposal with partnerships must be submitted as a collaborative. See the NSF Grant Proposal Guide Chapter II. D. 4. for additional information on collaborative proposals:

[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg). Partnership proposals should fully characterize the nature of the partnership and, at minimum, offer a clear rationale for the partnership, areas of synergy, history of relevant past partnership activities, potential for seamlessness in activities across institutions, as well as the value added to and by each partnering institution. Letters of support are required from all partners.

Project Scope: PAID projects can focus on all STEM disciplines, several disciplines, or only one discipline, including the social and behavioral sciences. Projects can have an international, national, state or local scope. Projects that have national systemic impact across a discipline or set of related disciplines are particularly encouraged. Additionally, proposals that involve activities targeted toward special populations of women faculty must include current institutional data on this group, disaggregated by multiple characteristics (e.g., race, ethnicity, disability status, sexual orientation), as appropriate, in addition to gender.

Project Activities: A wide range of activities can be undertaken as part of a PAID project. Previous or current funding from ADVANCE is not a prerequisite for submitting a PAID proposal. However, it is expected that the proposed PAID activities will be informed by social science literature, as well as the results of related ADVANCE projects and other non-ADVANCE projects (national and international). Potential project activities may include any of the projects listed below or any combination thereof. These examples should not limit the types of projects that are proposed under the PAID mechanism.

- **Adaptation and Implementation:** For institutions not currently or previously supported through an ADVANCE Institutional Transformation award, PAID awards could provide support for directed institutional transformation efforts (at a departmental, college, institutional, state, or regional level). PAID adaptation and implementation projects may include original innovative components and/or adapt existing strategies to a new context (such as a community college or minority serving institution) that will make significant contributions to our understanding of institutional transformation. The proposed strategies for adaptation and implementation do not have to be drawn from previous ADVANCE projects. PAID proposals designed to adapt and implement strategies are expected to: provide evidence that the materials, tools and practices have been effective in other situations; explain why they are expected to be effective in the new context; provide a plan to evaluate the results from the activities; and include a process for determining why particular strategies are more effective than others.
- **Dissemination:** PAID dissemination projects are expected to broaden the impact of systemic approaches to enhance the participation and advancement of women in academic STEM careers and to expand the network of institutions and individuals that are equipped with knowledge about the institutional factors underlying the underrepresentation of women in academic STEM disciplines and effective strategies used to overcome institutional barriers. Innovative strategies for dissemination are encouraged, particularly those that take advantage of existing organizational infrastructures that can sustain the proposed activities. Dissemination projects should identify the appropriate audiences, and dissemination strategies should be based on the proposed project goals. The materials, tools, and practices to be shared must have been demonstrated to be effective in increasing the participation and advancement of women in academic STEM careers; evidence of the effectiveness of such strategies must be included in the proposal. PAID dissemination projects may include workshops for individuals; however, these workshop proposals must include a clear plan for sustaining the workshops after the ADVANCE project ends (see additional ADVANCE merit review criteria).
- **PAID Research-Broadening Participation:** PAID Research-Broadening Participation awards support investigator-initiated scientific research on gender in the academic STEM workforce. These projects must be grounded in theory and must advance our scientific understanding of women in academia. Thus, PAID Research-Broadening Participation proposals must be rigorous social science studies. Proposals that focus on special populations of women faculty are encouraged. PAID Research-Broadening Participation proposals may be jointly reviewed as appropriate with other NSF research programs such as: the Science and Organizations (SoO) Program ([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=504696](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504696)); the Science Technology and Society (STS) Program ([http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5324&org=SES&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5324&org=SES&from=home)). Although proposals to ADVANCE may be jointly reviewed, PAID Research-Broadening Participation proposals submitted to ADVANCE must adhere to the proposal deadlines outlined in the ADVANCE solicitation.

---

### III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Cooperative Agreement or Standard Grant

Estimated Number of Awards: 22

The total number of awards to be made under this Solicitation is estimated to be 22. NSF expects to make: Approximately six (6) Institutional Transformation five-year awards, at various award sizes; Up to six (6) IT-Catalyst awards with durations of two years

and total budgets of approximately \$200,000 each; and up to ten (10) PAID awards, of various durations, not exceeding a maximum of \$750,000 for 5 years.

Anticipated Funding Amount: \$9,900,000

Pending availability of funds, NSF anticipates having approximately \$9,900,000 available over the two fiscal year period FY 2013-FY2014 for support of the ADVANCE portfolio. Approximately \$4,600,000 will be available for the FY2013 competition and approximately \$5,300,000 will be available for the FY2014 competition.

## IV. ELIGIBILITY INFORMATION

---

### Organization Limit:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

### PI Limit:

None Specified

### Limit on Number of Proposals per Organization: 1

Proposer organizations may submit only one Institutional Transformation proposal or one IT-Catalyst proposal. There is no limit on the number of PAID proposals that can be submitted.

### Limit on Number of Proposals per PI or Co-PI:

None Specified

### Additional Eligibility Info:

Proposals may only be submitted by the following:

Institutional Transformation (IT)

Institutional Transformation proposals may be submitted by non-profit academic institutions of higher education that have educational programs in a field supported by NSF and are in the US, its Territories, Commonwealths and Freely Associated States.

Institutions of higher education that have received an NSF ADVANCE Institutional Transformation award are not eligible to apply for another Institutional Transformation award. Organizations that received an IT-Catalyst (formerly IT-Start) or PAID award are eligible to apply for an Institutional Transformation award. However, the proposed goals, objectives or strategies in the proposed IT must be distinctly different from the prior PAID award and devoid of any overlap. *Any* institution meeting the minimum eligibility requirements may apply for an IT award. It is not necessary to have had an IT-Start or IT-Catalyst award in order to submit an Institutional Transformation proposal.

Proposals for IT awards from community colleges, primarily undergraduate institutions, minority-serving institutions (e.g. Tribal Colleges and Universities, Historically Black Colleges and Universities, Hispanic-Serving Institutions, Native Hawaiian Serving Institutions), women's colleges, and institutions primarily serving persons with disabilities are strongly encouraged.

Institutional Transformation-Catalyst

Institutional Transformation Catalyst proposals may be submitted by non-profit academic institutions of higher education that have educational programs in a field supported by NSF and are in the US, its Territories, Commonwealths and Freely Associated States. The institution's need for external resources to undertake institutional self assessment and policy review will, specifically, be evaluated using additional ADVANCE merit review criteria. Institutions applying for IT-Catalyst awards are expected to demonstrate institutional need within the proposal. Such need should be unrelated to recent national or state occurrences (e.g., decreased state funding, national economic disaster, etc.) unless an institution is disproportionately impacted by such circumstances. The institution's need for external resources to undertake institutional self assessment and policy review will specifically be evaluated using additional ADVANCE merit review criteria.

Institutions of higher education that have received an NSF ADVANCE IT or PAID award are not eligible to apply for an IT-Catalyst award. *Any* institution meeting the minimum eligibility requirements may apply for an IT-Catalyst award. Institutions that are particularly encouraged to apply for the ADVANCE IT-Catalyst award include: primarily undergraduate institutions; institutions that have historically received lesser amounts of NSF research funding; minority serving institutions (e.g., Historically Black Colleges and Universities, Hispanic-Serving Institutions, Native Hawaiian Serving Institutions); women's colleges; institutions primarily serving persons with disabilities; and institutions that have a Carnegie classification of master's colleges and universities, baccalaureate colleges, associate colleges or tribal colleges.

Institutions of higher education that do not meet the above criteria or have received an NSF ADVANCE IT or previous IT-Catalyst award are not eligible to apply for an IT-Catalyst award.

Partnerships for Adaptation, Implementation and Dissemination (PAID)

Partnerships for Adaptation, Implementation and Dissemination proposals may be submitted by non-profit academic institutions of higher education and state systems of higher education that have educational programs in a field supported by NSF, professional societies and other not-for-profit organizations that support the STEM enterprise. Professional societies are especially encouraged to apply. Submitting institutions and organizations, as well as partner institutions and organizations that would receive funds from the NSF grant, must be based in the US, its Territories, Commonwealths and Freely Associated States. Partnerships involving academic institutions, industry, government, professional societies and other not-for-profit organizations are encouraged, but not required. Partnerships with international entities are also encouraged; however, NSF funds typically only support the US



interest of the activity.

Institutions of higher education that have received an NSF ADVANCE IT or IT-Catalyst award are eligible to apply for a PAID award. However, the proposed goals, objectives or strategies in the proposed PAID must be distinctly different from the prior IT or IT Catalyst award and devoid of any overlap. Any institution or organization meeting the minimum eligibility and review criteria may apply for a PAID award.

STEM related professional societies are especially encouraged to apply for an ADVANCE PAID award.

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

---

### A. Proposal Preparation Instructions

---

Letters of Intent (**required**):

Letters of intent are required for all ADVANCE proposals. Only one letter of intent for an Institutional Transformation (IT) or an IT-Catalyst proposal can be submitted from an Institution of Higher Education (IHE). A separate letter of intent for each different PAID proposal is required even if submitted by one IHE, organization or principal investigator. The letters of intent will be used for planning the review of proposals. Eligibility to submit a full proposal is assumed with submission of a letter of intent by the deadline date. No formal invitation to submit a full proposal will be issued after the letter of intent has been received. The ADVANCE Program Office will only make contact with submitting institutions if the letter of intent is deemed non-responsive to this solicitation.

Letters of Intent must include:

- Project Synopsis (2500 character maximum): Provide a description of the proposed project. The ADVANCE Program Office will use this to determine if the proposal is appropriate for submission and if the proposal will need specialized expert review.
- Other Comments Input Text Area: List senior project personnel with a brief description of their proposed roles. List partner institutions and organizations, if any, with a brief description of each partner's involvement in the project. Other information such as known conflicts and areas of specialized expertise pertinent for the review process can also be included.

Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through FastLane in response to this Program Solicitation please note the conditions outlined below:

- Sponsored Projects Office (SPO) Submission is not required when submitting Letters of Intent
- Submission of multiple Letters of Intent for PAID projects is allowed

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](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](mailto: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](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](mailto: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.

Important Proposal Preparation Information: FastLane will check for required sections of the full proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, FastLane will not accept the proposal.

Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions. If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

#### 1. Institutional Transformation (IT)

Institutional Context and Data

Contextual information on the proposing institution, including a brief institutional profile, is important to explain the potential impact of the proposed project. This information should include a description of current and past activities and initiatives that are related to the

proposed project and how these activities will be incorporated into the proposed project initiatives. Although funding for IT projects cannot be requested to replace existing funding for ongoing activities at the institution, the IT project should coordinate with related existing activities; details on the coordination must be provided and letters of commitment may be appropriate. Data should provide the readers with a clear understanding of the current status of the proposing institution, which will allow the readers to evaluate the need for, potential impact of, and feasibility of the proposed project objectives and goals.

Comprehensive institutional data on faculty is required in the project description of IT proposals and not as supplementary documents. Proposals should present data on the status of women faculty and compare such data to national statistics when possible. Proposals that involve activities targeted toward special populations of women faculty must include current institutional data on this group, disaggregated by multiple characteristics (i.e., race, ethnicity, disability status, sexual orientation, etc.), as appropriate, in addition to gender. It is suggested that proposers review the "ADVANCE Indicators Toolkit" for guidance on the types of data that should be included. The toolkit is available at the ADVANCE portal website at <http://www.portal.advance.vt.edu/>.

Other data, such as survey results and analysis, can be included. The data and the data analysis should serve as part of the justification for the proposed IT project and the specific strategies outlined in the proposal. The data should provide the readers a clear understanding of the current status of women at the proposing institution, which will allow the readers to evaluate the impact and feasibility of the proposed project objectives and goals.

Please, note that this section should not consume a significant portion of the available fifteen pages for the project description since it is also very important to fully describe the other aspects of the proposal, particularly the proposed activities.

#### Institutional Commitment and Sustainability

Institutional commitment from key administrative leadership to the proposed project activities and institutional transformation is vital for successful projects and must be demonstrated in the proposal (see additional ADVANCE merit review criteria). Letters of commitment from key administrators and partners are required with IT proposals and should be submitted as supplementary documents. The institutional commitment should also be made clear in the content of the project description, however, detailed financial descriptions are prohibited.

Institutional support is also demonstrated through commitment to project sustainability. Proposals must include detailed plans to ensure sustainability of the successful efforts past the term of the award (see additional ADVANCE merit review criteria).

#### Activities Description

Institutional Transformation proposals must clearly state the conceptual framework for the proposed project, identify relevant research findings, and build on existing research and practice. NSF anticipates that publicly available findings from earlier ADVANCE Program awards will be incorporated as appropriate into proposals for institutional transformation, and that research perspectives relevant to the issues ADVANCE seeks to address will be clearly reflected in the design of proposed projects.

Proposals should demonstrate the connection between the conceptual framework, the issues identified through analysis of institutional data, and the proposed plan (including the allocation of resources) so that reviewers will be able to understand what specific issues will be addressed over the course of the project, the assumptions about why those issues exist, and the ways in which the proposed interventions will address those issues. The proposed activities should be linked to specific objectives and goals.

The proposed approach(es) for *innovative* and systemic institutional transformation to increase the participation and advancement of women in academic STEM careers must be fully described. The proposal must also describe a rigorous quantitative or qualitative social science study to investigate theory-driven models and innovations related to the participation and advancement of women in the academic STEM disciplines. To that end, IT proposals are required to include a five page supplementary document that describes, in detail, the social science study. The supplemental document must include information relevant to the proposed study, such as: 1) the disciplinary and conceptual framework for the study; 2) a discussion of the theory or theories grounding the research and the testable hypotheses; 3) the proposed methods to test the hypotheses; 4) the expected findings; and 5) to what extent the results and data will be disaggregated for multiple characteristics such as race, ethnicity, sexual orientation and disability, in addition to gender.

It is expected that the research component will contribute to the knowledge base informing academic institutional transformation, or other relevant areas of academic investigation. Research that investigates novel aspects of the proposal is especially encouraged. It should be clear in the proposal which team members and/or consultants will undertake the social science study and their relevant qualifications and skills.

#### Dissemination

One of the objectives of the NSF ADVANCE program is to contribute to the national knowledge base about institutional transformation and organizational change. Therefore, the dissemination and diffusion of knowledge gained about institutional transformation to organizations and institutions that can implement reforms based on what has been learned is encouraged.

The proposal must include a detailed dissemination plan that details efforts to develop and maintain an ADVANCE Program website and demonstrates that the proposer is aware of appropriate channels for sharing results from the project, such as specific peer-reviewed journals and publications, web sites and professional association conferences. Simply making materials, tools, research, and practices available to others is not effective dissemination. Rather, an effort to teach and/or train individuals and groups how to adopt or adapt the information is expected as well.

#### Project Management

Institutional Transformation proposals must include a management plan and timeline including anticipated milestones and detailing how project activities will be organized and implemented. The timeline should include the project's major activities and milestones (including project evaluation) and identify the individual(s) responsible for completing each activity. A project organizational chart that illustrates how the project fits into the institution's hierarchy may be included.

The project responsibilities and level of effort on the project must be clearly described for the institutional transformation team (PIs and other key personnel, including those for whom no funding is requested). The institutional transformation team must include appropriate social science expertise. This expertise should be utilized both in the implementation of the strategies and the proposed social science study of the institutional transformation project.

IT projects are required to have an Internal Steering Committee or Internal Advisory Committee to oversee project implementation, resolve project issues, and ensure that the project is on track for meeting project goals. Ideally, the Internal Steering/Advisory Committee is not involved in the implementation of ADVANCE activities. The size of the committee should be manageable, and the roles and responsibilities of the committee should be described. The composition of the committee will depend on the design of the project - members could include STEM faculty, institutional staff who provide faculty services that are included in the project, and

representatives of offices that will provide information or other resources to the project. This committee should meet frequently throughout the project.

IT projects are required to have an External Advisory Committee, with members who can advise the institutional transformation team on the implementation of the project and progress toward project goals. Members could include social science experts in areas relevant to the project activities and leaders from other institutions of higher education. The External Advisory Committee role is distinct from the external evaluation of the project.

#### Project Evaluation

It is required that each project include a formative and summative evaluation plan. The evaluation plan should refer to the objectives, goals, and baseline data presented within the description of the proposed project activities. The formative evaluation should include benchmarks and indicators of progress that demonstrate the proposers' understanding of the essential quantitative and qualitative indicators for assessing the project's implementation processes. The summative evaluation should assess whether the overall project goals were achieved, and should also identify any unexpected results. The collection and reporting of the ADVANCE indicator toolkit data alone are not sufficient for project evaluation. Additional information about project evaluation is available at the following website: <http://www.nsf.gov/pubs/2002/nsf02057/start.htm>.

IT projects are required to have both an internal and external evaluation component because of the size and complexity of the project; the proposal must include an evaluation plan outline. The internal evaluation may be done by an individual at the institution, who is not involved in the day-to-day implementation of the project. The internal and external evaluation components must be well-coordinated in order to minimize data collection and duplicative work. The external evaluation component should be done by an external individual who is not an employee of the institution and has not been involved in the implementation of the project.

#### Supplementary Documents

Only the following documents may be submitted as Supplementary Documents in IT proposals: data management plan (required); postdoctoral fellow mentoring plan, as appropriate (required); letters of commitment; external evaluator curriculum vitas; and, the five-page supplementary document devoted to the description of the social science study's theoretical foundation and methodologies.

## 2. IT-Catalyst

### Institutional Context and Data

Contextual information on the proposing institution is important for the reviewers to understand the potential impact of and the need for the project. This information should include a description of current and past activities and initiatives that are related to the proposed project, with a description of how these activities will be incorporated into the proposed IT-Catalyst activities.

Comprehensive institutional data on faculty are not expected in IT-Catalyst proposals, since data-gathering may be a proposed activity in the IT-Catalyst project. However, basic data on faculty should be included in order to demonstrate the need and potential impact of the proposed project. Proposals that involve activities targeted toward special populations of women faculty must include current institutional data on this group, disaggregated by multiple characteristics (i.e., race, ethnicity, disability status, sexual orientation, etc.), as appropriate, in addition to gender.

This section should not consume a significant portion of the available fifteen pages for the project description since it is also very important to fully describe the other aspects of the proposal, particularly the proposed activities.

### Institutional Commitment

Institutional commitment from key administrative leadership to the proposed project activities and institutional transformation is vital for successful projects and must be demonstrated in the proposal (see additional ADVANCE merit review criteria). Letters of commitment from key administrators and partners are required with IT Catalyst proposals and should be submitted as supplementary documents. The institutional commitment should also be made clear in the content of the project description, however, detailed financial descriptions are prohibited.

### Self-Assessment Activities Description

Activities within an IT-Catalyst project should involve a broad range of faculty (junior and senior, male and female, chairs and administrators) to increase awareness of the issues on campus and to increase the number of faculty and administrators invested in the project. Such involvement may contribute to the design and improve the success of subsequent institutional transformation. Involvement of external parties with expertise in institutional change and data-gathering may also be useful. Potential IT-Catalyst activities include, but are not limited to:

#### Collection of Institutional Information Data

- Collection of institutional faculty data disaggregated by department, rank, gender, disability, and ethnicity. Review the "ADVANCE Indicators Toolkit" for guidance on the type of data that are valuable for self-assessment. The toolkit is available at the ADVANCE portal website at <http://www.portal.advance.vt.edu/>.
- Faculty surveys (climate, salary, etc.) as appropriate. Projects should avoid implementing many different surveys in a short time to avoid issues such as survey burn out, and use existing survey data whenever possible.
- Identification and collection of relevant institutional policies and procedures.

#### Analysis and Synthesis of Institutional Information

- Analysis of the institutional faculty data and surveys in order to determine areas of need.
- Performance of a preliminary review of relevant institutional policies and procedures to determine if changes may be needed and identify the process for making such changes; administrative commitment to make such changes can be used to demonstrate institutional support.

#### Institutional Buy-in

- Invite experts to campus to discuss relevant topics such as implicit bias, work/life balance, and other particularly relevant gender equity issues with key stakeholders such as chairs, deans and faculty.
- Hold town hall-like meetings for faculty to encourage discussion of the issues and collect their input.
- Report to institutional leadership throughout the project period or otherwise involve them (e.g., a leadership advisory board that meets regularly during the project period).

#### Identification and Adaptation of Institutional Transformation Strategies

- Visit current or past ADVANCE IT grantees to learn about strategies that have been implemented and/or bring in consultants to provide recommendations on possible strategies.
- In consultation with key stakeholders, identify and adapt potential transformation strategies that will address the areas of need identified in the analysis of data and other institutional information.

## Project Management

IT-Catalyst proposals must include a management plan and timeline that detail how project activities will be organized and implemented. The timeline should include the major project activities and benchmarks (including project evaluation) and identify the individual(s) responsible for completing each activity.

IT-Catalyst projects are encouraged to incorporate an Internal Steering Committee or Internal Advisory Committee to oversee the project implementation, resolve project issues, and ensure that the project is on track for meeting its goals. Ideally, the Internal Steering/Advisory Committee is not involved in the implementation of ADVANCE activities. The size of the committee should be manageable and the roles and responsibilities of the committee should be described. The composition will depend on the scope of the project - members could include STEM faculty, institutional staff that provide faculty services which are included in the project, and representatives of offices that will provide information or other resources to the project. This committee should meet frequently throughout the project.

IT-Catalyst projects may also elect to include an External Advisory Committee composed of members who will advise the project team on the implementation of the project and progress toward project goals. Members might include social science experts in areas relevant to the project activities, representatives of key stakeholder groups, and leaders from other organizations and institutions of higher education.

## Project Evaluation

The evaluation of the IT-Catalyst project must focus on evaluation of the self-assessment process. The data collection and analysis activities that are part of the self-assessment activities are not equivalent to and do not replace project evaluation. The evaluation should measure the success of the self-assessment activities and progress toward the goals outlined in the proposal. Evaluation of the IT-Catalyst project does not need to be done by an external evaluator if it can be demonstrated that an institutional office or qualified individual on campus can provide an objective internal evaluation. Additional information about project evaluation is available at the following website: <http://www.nsf.gov/pubs/2002/nsf02057/start.htm>.

## Institutional Need for Resources

The IT Catalyst is designed to provide institutions, which have been historically under-resourced, with opportunities to engage in activities that are designed to prepare the institution for transformation. To that end, the institution is expected to provide justification that details an institutional history of limited resource availability. Institutional need should be unrelated to recent national or state occurrences (e.g., decreased state funding, national economic disaster, etc.) unless an institution is disproportionately impacted by such circumstances.

## Supplementary Documents

Only the following documents may be submitted as Supplementary Documents in IT Catalyst proposals: data management plan (required); postdoctoral fellow mentoring plan, as appropriate (required); letters of commitment; and, external evaluator curriculum vitae.

## 3. Partnerships for Adaptation, Implementation, and Dissemination (PAID)

### Context and Data

Contextual information on the proposing institutions and organizations is important to demonstrate the potential impact of the proposed project. This information should include a description of current and past activities and initiatives that are related to the proposed project and how these activities will be incorporated into the proposed project initiatives, including how they inform the proposed activities. Although funding for PAID projects cannot be requested to replace existing funding for ongoing activities, the PAID project should coordinate with any existing activities; details on the coordination must be provided and letters of commitment may be appropriate.

Relevant data to support the justification for the need for the proposed project is required in PAID proposals. Project-related data should be provided for all partners if a partnership is proposed. The data should provide the readers a clear understanding of the current status of the proposing institution(s) and/or organization(s), which will allow the readers to evaluate the impact and feasibility of the proposed project objectives and goals. Proposals that involve activities targeted toward special populations of women faculty must include current institutional data on this group, disaggregated by multiple characteristics (i.e., race, ethnicity, disability status, sexual orientation, etc.), as appropriate, in addition to gender.

This section should not consume a significant portion of the available fifteen pages for the project description since it is very important to fully describe the proposed activities.

### Commitment and Sustainability

Commitment from key stakeholders to the proposed PAID project is vital for successful implementation and sustainability (see additional ADVANCE merit review criteria). Letters of commitment from institutional and organizational leadership and other decision making bodies such as advisory boards or committees may be appropriate to include in PAID proposals and should be submitted as supplementary documents. However, detailed financial descriptions are prohibited.

Institutional support is also demonstrated through commitment to project sustainability. Proposals must include detailed plans to ensure sustainability of the successful efforts past the term of the award (see additional ADVANCE merit review criteria).

### Activities Description

A wide range of activities can be undertaken as part of a PAID project. Activities of various and multiple scales are welcome, however, the requested budget should be appropriately scaled to the potential impact, size and complexity of the proposal. PAID project activities must be informed by publicly available findings from earlier ADVANCE projects, other related projects, and by relevant social science literature.

Strong PAID project proposals will be based on a conceptual framework that is linked to the proposed strategies and project objectives and goals. The description of the project should inform the reviewers about the specific issues that will be addressed over the course of the project, the understanding about why those issues exist, and the ways in which the proposed project will address

these issues. All PAID projects *may* include research components. The following section provides guidance specific to PAID Research-Broadening Participation projects.

#### Additional Guidance for PAID Research-Broadening Participation Projects

PAID Research-Broadening Participation projects must be grounded in theory and must advance our scientific understanding of issues related to women's retention and advancement in STEM academic careers. PAID Research-Broadening Participation proposals must be rigorous studies grounded in social science theory and literature. The results of the study should be expected to be of sufficient significance to merit peer-review and publication. It should be clear in the proposal which team members and/or consultants will undertake the study and their relevant qualifications and skills.

Levels of analysis in PAID Research-Broadening Participation projects may include, but are not limited to individuals, groups and institutional types. Disciplinary perspectives may include, but are not limited to the social, behavioral and economic sciences, higher education administration, computer and information sciences, decision and management sciences, and complexity sciences. Research methods may span a broad variety of qualitative and quantitative methods, including, but not limited to archival analyses, surveys, simulation studies, experiments, organizational and individual ethnographies, comparative case studies, and network analyses.

A PAID Research-Broadening Participation proposal must include information relevant to the study, such as: 1) the research question; 2) the disciplinary and conceptual framework for the study; 3) a discussion of the theory or theories grounding the research and the testable hypotheses; 4) the proposed methods to test the hypotheses; 5) the expected findings; and 6) to what extent the results and data will be disaggregated for multiple characteristics (such as race, ethnicity, sexual orientation, disability) in addition to gender.

#### Project Management

PAID proposals must include a management plan and timeline that detail how project activities will be organized and implemented. The timeline should include the major activities (including project evaluation) and projected benchmarks and identify the individual(s) that will be responsible for completing each activity. The project responsibilities and level of effort on the project must be clearly described for all key personnel, including those for whom funding is not requested.

PAID projects may incorporate an Internal Steering Committee or Internal Advisory Committee to oversee the project implementation, resolve project issues, and ensure that the project is on track for meeting project goals. Ideally, the Internal Steering/Advisory Committee is not involved in the implementation of ADVANCE activities. The size of the committee should be manageable and the roles and responsibilities of the committee should be described. The composition will depend on the design of the project - members could include STEM faculty, institutional staff who provide faculty services that are included in the project, and representatives of offices that will provide information or other resources to the project. This committee should meet frequently throughout the project.

PAID projects may also elect to include an External Advisory Committee composed of members who will advise the PAID project team on the implementation of the project and progress toward project goals. Members might include social science experts in areas relevant to the project activities, representatives of key stakeholder groups, and leaders from other organizations and institutions of higher education.

#### Project Evaluation

It is required that each project include a formative and summative evaluation plan. The evaluation plan should refer to the objectives, goals, and baseline data already presented within the description of the proposed project activities. The formative evaluation should include benchmarks and indicators of progress that demonstrate the proposers' understanding of the essential quantitative and qualitative indicators for assessing the project's implementation processes. The summative evaluation should assess whether the project achieved the overall project goals as well as identify any unexpected results. The collection and reporting of project-related data and participant's evaluations of activities alone are not sufficient for project evaluation. PAID Research-Broadening Participation projects do not require a project evaluation. Additional information about project evaluation is available at the following website: <http://www.nsf.gov/pubs/2002/nsf02057/start.htm>.

#### Supplementary Documents

Only the following documents may be submitted as Supplementary Documents in PAID proposals: data management plan (required); postdoctoral fellow mentoring plan, as appropriate (required); letters of commitment; and, external evaluator curriculum vitas.

## B. Budgetary Information

---

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

## C. Due Dates

---

- Letter of Intent Due Date(s) (**required**) (due by 5 p.m. proposer's local time):
  - October 05, 2012  
Partnerships for Adaptation, Implementation and Dissemination (PAID)
  - October 04, 2013  
Institutional Transformation (IT) and Institutional Transformation Catalyst (IT-Catalyst)
- Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):
  - November 08, 2012  
Partnerships for Adaptation, Implementation and Dissemination (PAID)
  - November 12, 2013  
Institutional Transformation (IT) and Institutional Transformation Catalyst (IT-Catalyst)

## 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](mailto: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. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: [http://www07.grants.gov/applicants/app\\_help\\_reso.jsp](http://www07.grants.gov/applicants/app_help_reso.jsp). 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](mailto: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 for acknowledgement and, if they meet NSF requirements, for review. 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 either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with 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. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as [Exhibit III-1](#).

A comprehensive description of the Foundation's merit review process is available on the NSF website at: [http://nsf.gov/bfa/dias/policy/merit\\_review/](http://nsf.gov/bfa/dias/policy/merit_review/).

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in [Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years \(FY\) 2011-2016](#). These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the core strategies in support of NSF's mission 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 variety of learning perspectives.

Another core strategy in support of NSF's mission is broadening opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which 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.

### A. Merit Review Principles and Criteria

---

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

#### 1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

## 2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. Both criteria are to be given full consideration during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. ([GPG Chapter II.C.2.d.i.](#) contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including [GPG Chapter II.C.2.d.i.](#), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- Intellectual Merit: The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- Broader Impacts: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
  - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
  - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

## Additional Solicitation Specific Review Criteria

The ADVANCE additional merit review criteria include:

### Institutional Transformation:

- How significant will the contribution of the study of the proposed innovative components and other IT activities be to the institutional transformation knowledge base? How strong are the indicators of institutional readiness for institutional transformation and commitment to the project activities and goals?
- How well are the proposed activities linked to the institutional context and data?
- How well is the relevant social science literature incorporated into the design of the proposed innovative components and other IT activities?
- If women from special populations are included, how likely are the proposed activities to target their unique circumstance?
- Are mechanisms planned that ensure long-term sustainability beyond the duration of the funded project?
- Is the current proposal devoid of overlap with previous ADVANCE PAID funding (if appropriate)?

### Institutional Transformation-Catalyst:

- Has the institution adequately demonstrated its need for financial resources?
- How strong is the explanation of institutional need for external support to undertake the proposed activities?
- How strong are the indicators of institutional commitment to the project activities and goals?
- If women from special populations are included, how likely are the proposed activities to target their unique circumstance?
- How likely is this project to lead the institution toward readiness for sustained transformation?
- Are mechanisms planned that ensure long-term sustainability beyond the duration of the funded project?

Partnerships for Adaptation, Implementation and Dissemination (PAID):

For proposers *not* previously funded by ADVANCE (not applicable to PAID Research-Broadening Participation projects):

- How well did the proposer demonstrate the effectiveness and/or lessons learned of the strategies and methods chosen to be adapted and/or disseminated? How well did the proposer establish the significance of adapting the strategies and methods to the proposed context(s)?
- If women from special populations are included, how likely are the proposed activities to target their unique circumstance?
- Are mechanisms planned that ensure long-term sustainability beyond the duration of the funded project?

For proposers previously funded through ADVANCE (not applicable to PAID Research-Broadening Participation projects):

- How well did the proposer demonstrate the effectiveness and/or lessons learned of the strategies and methods chosen to be adapted and/or disseminated from the previous ADVANCE project? Is the proposed project significantly different from and devoid of overlap with the previous ADVANCE project?
- How strong is the proposed plan for sustainability?

For PAID Collaborative Proposals

- Are the resources maximally shared between/among partnering institutions? Is there adequate representation of all partnering institutions in the leadership of the project?
- Was adequate attention paid to the unique institutional characteristics of all partner institutions; are these nuances addressed in the proposed strategies to be implemented?

For PAID Research - Broadening Participation, proposals will be reviewed based on NSF's two merit review criteria, Intellectual Merit and Broader Impacts.

## 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](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](mailto: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](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

Special Award Conditions:

Institutional Transformation awards will be made as cooperative agreements. Among other special award conditions (described below), there will be a total of two site visits held in the first and third years of Institutional Transformation awards. The purpose of the site visit review is to provide technical assistance (especially during the first year site visit) and to conduct an in depth evaluation of performance, assess progress toward goals, provide advice and recommendations for enhancing project performance, and to determine continuation of support for the project.

Some PAID Awards may be made as cooperative agreements if the Program Office determines that the project is significantly larger and warrants special award conditions.

## 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 prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following 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 all identified PIs and co-PIs on a given award. 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 Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also 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.

More comprehensive information on NSF Reporting Requirements 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](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

Additional Reporting Requirements: Institutional Transformation awardees are required to submit quarterly interim reports in addition to the standard NSF reporting requirements. This reporting requirement will be included in the cooperative agreement that is binding between the awardee institution and the NSF. PAID and IT-Catalyst awardees will have the standard NSF reporting requirements.

## VIII. AGENCY CONTACTS

---

*Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.*

General inquiries regarding this program should be made to:

- Beth Mitchneck, Program Director, 815N, telephone: (703) 292-5178, fax: (703) 292-9018, email: [bmitchne@nsf.gov](mailto:bmitchne@nsf.gov)
- Cynthia R. Douglas, Program Specialist, 815N, telephone: (703) 292-5175, fax: 703 292-9018, email: [cdouglas@nsf.gov](mailto:cdouglas@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto:fastlane@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](mailto:support@grants.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, "My NSF" is an information-delivery system 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 [Grants Conferences](#). Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "My NSF" also is available on NSF's website at <http://www.nsf.gov/mynsf/>.

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>.

Background Information:

ADVANCE Web Portal. 2011. Editor, P. Layne. Virginia Polytechnic Institute and State University. Last accessed November, 2011. .

- Bailyn, L. 2003. "Academic Careers and Gender Equity: Lessons Learned from MIT." *Gender Work and Organization* 10: 137-153.
- Bell, Robin, Laird, Jennifer, Pfirman, Stephanie, Mutter, John, Balstad, Roberta and Cane, Mark, "An experiment in institutional transformation: The NSF ADVANCE program for women at the Earth Institute at Columbia University", *Oceanography*, p. 25, vol. 18, (2005).
- Bilimoria, Diana, Perry, Susan, Liang, Xiangfen, Higgins, Patricia, Stoller, Eleanor & Taylor, Cyrus. 2006. How Do Female and Male Faculty Members Construct Job Satisfaction? The Roles of Perceived Institutional Leadership and Mentoring and their Mediating Processes, *Journal of Technology Transfer*, 32: 355-365.
- Budden, Amber E., Tom Tregenza, Lonnie W. Aarssen, Julia Koricheva. 2008. "Double-Blind Review Favours Increased Representation of Female Authors." *Trends in Ecology and Evolution* 23: 4-6.
- Burrelli, Joan, 2008. "Thirty-Three Years of Women in S&E Faculty Positions." InfoBrief Science Resource Statistics, National Science Foundation, Division of Science Resources Statistics (NSF 08-308).
- Building Engineering and Science Talent. 2004. A Bridge for All: Higher Education Design Principles to Broaden Participation in Science, Technology, Engineering, and Mathematics. See [www.bestworkforce.org](http://www.bestworkforce.org)
- Bystydzienski, Jill M. and Sharon R. Bird. 2006. *Removing Barriers: Women in Academic Science, Technology, Engineering and Mathematics*. Indiana University Press.
- Congressional Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology Development. 2000. *Land of Plenty: Diversity as America's Competitive Edge in Science, Engineering, and Technology*. Arlington, VA: National Science Foundation (CAWMSET 04-09).
- Eckel, P, Hill, B., and M. Green. 1998. *On Change: En Route to Transformation*. Washington, DC: American Council on Education.
- Etzkowitz, Henry, Carol Kemelgor, and Brian Uzzi. 2000. *Athena Unbound: The Advancement of Women in Science and Technology*. New York: Cambridge University Press.
- Frank Fox, Mary, Colatrella, Carol. 2006. "Participation, Performance, and Advancement of Women in Academic Science and Engineering: What is at Issue and Why." *Journal of Technology Transfer*, 31: 377-386.
- Frank Fox, Mary. 2001. "Women, Science, and Academia: Graduate Education and Careers." *Gender and Society* 15: 654-666.
- Gaughan, Monica, ed. 2006. *Journal of Technology Transfer*. Special Issue, Women in Science. 31: 307-396.
- Goulden, M. Frasch, K. and M.A. Mason. 2009. *Staying Competitive: Patching America's Leaky Pipeline in the Sciences*. The University of California, Berkeley - Berkely Center on Health, Economic and Family Security and the Center for American Progress.
- Heilman, Madeline E. 2001. "Description and Prescription: How Gender Stereotypes Prevent Women's Ascent Up the Organizational Ladder." *Journal of Social Issues* 57: 657-74.
- Heilman, Madeline E., Aaron S. Wallen, Daniella Fuchs, D. and Melinda M. Tamkins. 2004. "Penalties for Success: Reactions to Women Who Succeed at Male Gender-Typed Tasks." *Journal of Applied Psychology* 89: 416-427.
- Ivie, Rachel and Kim Nies Ray. 2005. *Women in Physics and Astronomy, 2005*. Washington, DC: American Institute of Physics. [[www.aip.org/statistics/trends/reports/women05.pdf](http://www.aip.org/statistics/trends/reports/women05.pdf)]
- Kalev, Alexandra, Frank Dobbin, and Erin Kelly, 2006. "Best Practices or Best Guesses? Diversity Management and the Remediation of Inequality." *American Sociological Review* 71: 589-917.
- Kulis, Stephen, Diane Sicotte, and Shawn Collins. 2002. "More Than a Pipeline Problem: Labor Supply Constraints and Gender Stratification Across Academic Science Disciplines." *Research in Higher Education* 43: 657-691.
- Lamont, Michele, Alexandra Kalev, Shawna Bowden, and Ethan Fosse. 2004. "Recruiting, Promoting, and Retaining Women Academics: Lessons from the Literature." Prepared for the Standing Committee on the Status of Women, Faculty of Arts and Sciences, Harvard University. [<http://www.wjh.harvard.edu/~mlamont/lessons.pdf>]
- Lee, Jenny J. 2004. "Comparing Institutional Relationships with Academic Departments: A Study of Five Academic Fields." *Research in Higher Education* 45: 603-624.
- Leggon, Cheryl B. 2006. "Women in Science: Racial and Ethnic Differences and the Differences They Make." *The Journal of Technology Transfer* 31: 325-333.
- Long, J. Scott, ed. 2001. *From Scarcity to Visibility: Gender Differences in the Careers of Doctoral Scientists and Engineers*. Washington, D.C.: National Academy Press.
- Luna, Andrew L. 2006. Faculty Salary Equity Cases: Combining Statistics with the Law. *Journal of Higher Education* 77: 193-224.
- Marchant, Angela, Abhik Bhattacharya, Molly Carnes. 2007. "Can the Language of Tenure Criteria Influence Women's Academic Advancement?" *Journal of Women's Health* 16: 998-1003.
- Martinez, Elisabeth D., Jeannine Botos, Kathleen M. Dohoney, Theresa M. Geiman, Sarah S. Kolla, Ana Olivera, Yi Qiu, Geetha Vani Rayasam, Diana A. Stavreva, and Orna Cohen-Fix. 2007. Falling off the Academic Bandwagon: Women are More Likely to Quit at the Postdoc to Principal Investigator Transition. *EMBO Reports* 8: 977-981.
- Marschke, Robyn, Sandra Laursen, Joyce McCarl Nielsen, and Patricia Rankin. 2007. "Demographic Inertia Revisited: An Immodest Proposal to Achieve Equitable Gender Representation among Faculty in Higher Education." *Journal of Higher Education* 78: 1-26.

- Massachusetts Institute of Technology. 1999. A Study on the Status of Women Faculty in Science at MIT. The MIT Faculty Newsletter, Vol. XI, No. 4. [<http://web.mit.edu/fnl/women/women.html>]
- National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. Committee on Maximizing the Potential of Women in Academic Science and Engineering and the Committee on Science, Engineering, and Public Policy. 2007. *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*. Washington, D.C.: The National Academies Press.
- National Research Council. 2006. *To Recruit and Advance - Women Students and Faculty in Science and Engineering*. Washington, D.C.: The National Academies Press.
- National Research Council. 2009. *Gender Differences at Critical Transitions in the Careers of Science, Engineering, and Mathematics Faculty*. Washington, D.C.: The National Academies Press.
- National Science Board. 2008. *Science and Engineering Indicators 2008*. Two volumes. Arlington, VA: National Science Foundation (volume 1, [NSB 08-01](#); volume 2, [NSB 08-01A](#)).
- National Science Foundation, Division of Science Resources Statistics. 2009. *Women, Minorities, and Persons with Disabilities in Science and Engineering*: <http://www.nsf.gov/statistics/wmpd/>.
- Nelson, Donna J. 2005. "A National Analysis of Diversity in Science and Engineering Faculties at Research Universities." Norman, OK. <http://faculty-staff.ou.edu/N/Donna.J.Nelson-1/diversity/briefings/Diversity%20Report%20Final.pdf>
- Nelson, Donna J. 2007. "A National Analysis of Minorities in Science and Engineering Faculties at Research Universities." Norman, OK. [http://faculty-staff.ou.edu/N/Donna.J.Nelson-1/diversity/Faculty\\_Tables\\_FY07/07Report.pdf](http://faculty-staff.ou.edu/N/Donna.J.Nelson-1/diversity/Faculty_Tables_FY07/07Report.pdf)
- Ong, M. 2010. "The Mini-Symposium on Women of Color in Science, Technology, Engineering and Mathematics (STEM): A Summary of Events, Findings and Suggestions": [http://www.nsf.gov/od/iaa/activities/ceose/reports/TERC\\_mini\\_symp\\_rprt\\_hires.pdf](http://www.nsf.gov/od/iaa/activities/ceose/reports/TERC_mini_symp_rprt_hires.pdf).
- Reskin, Barbara F. 2003. "Including Mechanisms in Our Models of Ascriptive Inequality." *American Sociological Review* 68:1-21.
- Rosser, Sue V., Eliesh O'Neil Lane. 2002. "Key Barriers for Academic Institutions Seeking to Retain Women Scientists and Engineers: Family-Unfriendly Policies, Low Numbers, Stereotypes, and Harassment." *Journal of Women and Minorities in Science and Engineering* 8:163-192.
- Sue V. Rosser and Eliesh O'Neil Lane. 2002. "Funding for women's programs at NSF: Using individual POWRE approaches for institutions to ADVANCE." *Journal of Women and Minorities in Science and Engineering* 8: 327.
- Rosser, Sue V. 2004. *The Science Glass Ceiling: Academic Women Scientists and the Struggle to Succeed*. New York: Routledge.
- Rosser, Sue V. and Jean-Lou Chameau. 2006. "Institutionalization, Sustainability, and Repeatability of ADVANCE for Institutional Transformation." *Journal of Technology Transfer* 32: 331-340.
- Schuster, Jack H., and Martin J. Finkelstein. 2006. *The American Faculty: The Restructuring of Academic Work and Careers*. Baltimore: Johns Hopkins University Press.
- Settles, Isis H., Lilia M. Cortina, Janet Malley, and Abigail J. Stewart. 2006. "The climate for women in academic science: The good, the bad, and the changeable." *Psychology of Women Quarterly* 30: 47-58.
- Settles, Isis H., Lilia M. Cortina, Abigail J. Stewart, and Janet Malley. 2007. "Voice Matters: Buffering the Impact of a Negative Climate for Women in Science." *Psychology of Women Quarterly* 31: 270-281.
- Smith-Doerr, Laurel. 2004. *Women's Work: Gender Equality vs. Hierarchy in the Life Sciences*. Boulder, CO: Lynne Rienner Publishers.
- Spalter-Roth, Roberta, and William Erskine. 2005. "Beyond the Fear Factor: Work/family Policies in Academia - Resources or Rewards?" *Change*. November/December: 19-25.
- Steinpreis, Rhea, Katie A. Ander, and Dawn Ritzke. 1999. "The Impact of Gender on the Review of the Curricula Vitae of Job Applicants and Tenure Candidates: A National Empirical Study." *Sex Roles* 41: 509-528.
- Stewart, Abigail J., Janet E. Malley, and Danielle LaVaque-Manty, Eds. 2007. *Transforming Science and Engineering: Advancing Academic Women*. University of Michigan Press, Ann Arbor, MI.
- Sturm, Susan. 2006. "The Architecture of Inclusion: Advancing Workplace Equity in Higher Education." *Harvard Journal of Law and Gender* 29: 247-334.
- Thomas-Hunt, Melissa C. and Katherine W. Phillips. 2004. "When What You Know Is Not Enough: Expertise and Gender Dynamics in Task Groups." *Personality and Social Psychology Bulletin* 30: 1585-1598.
- Thompson, Mischa and Denise Sekaquaptewa. 2002. "When Being Different Is Detrimental: Solo Status and the Performance of Women and Racial Minorities." *Analyses of Social Issues & Public Policy*. 2: 183-20.
- Trix, F. and C. Psenka. 2003. "Exploring the color of glass: letters of recommendation for female and male medical faculty." *Discourse & Society* 14: 191-220.
- Umbach, Paul D. 2007. "Gender Equity in the Academic Labor Market: An Analysis of Academic Disciplines." *Research in Higher Education* 48: 169-192.
- Valian, V. 1998. *Why So Slow? The Advancement of Women*. Cambridge, Mass.: MIT Press.
- Wenneras, C. and A. Wold. 1997. "Nepotism and sexism in peer-review." *Nature* 387: 341-343.

West, Martha S. and John W. Curtis. 2006. AAUP Faculty Gender Equity Indicators 2006. Washington, DC: American Association of University Professors. [<http://www.aaup.org/reports-publications/publications/see-all/aaup-faculty-gender-equity-indicators-2006>]

Williams, Joan. 2004. "Hitting the Maternal Wall." *Academe* 90 (7 pages). Retrieved August 8, 2008. (<http://advance.uci.edu/Docs/Hitting%20the%20Maternal%20Wall.pdf>)

Wright, M.C. 2008. *Always at odds? Creating alignment between faculty and administrator values*. Albany, NY: SUNY.

Wright, Mary C. 2005. "Always at Odds? Congruence in Faculty Beliefs about Teaching at a Research University" *Journal of Higher Education* 76: 331-353.

Xie, Y. and K.A. Shauman. 2003. *Women in Science: Career Processes and Outcomes*. Cambridge: Harvard University Press.

## 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 55,000 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 Arctic 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: [nspubs@nsf.gov](mailto:nspubs@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  
Office of the General Counsel  
National Science Foundation  
Arlington, VA 22230

<a href="#">Policies and Important Links</a>	<a href="#">Privacy</a>	<a href="#">FOIA</a>	<a href="#">Help</a>	<a href="#">Contact NSF</a>	<a href="#">Contact Web Master</a>	<a href="#">SiteMap</a>
	The National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230, USA Tel: (703) 292-5111, FIRS: (800) 877-8339   TDD: (800) 281-8749					Last Updated: 11/07/06 <a href="#">Text Only</a>