

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

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## PROGRAM SOLICITATION

NSF 16-594

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## REPLACES DOCUMENT(S):

NSF 14-573

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### National Science Foundation

Directorate for Education & Human Resources  
Division of Human Resource Development

Directorate for Biological Sciences

Directorate for Computer & Information Science & Engineering

Directorate for Engineering

Directorate for Geosciences

Directorate for Social, Behavioral & Economic Sciences

Directorate for Mathematical & Physical Sciences

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

December 14, 2016

Second Wednesday in December, Every Other Year Thereafter

Partnerships Letter of Intent

August 09, 2017

Second Wednesday in August, Every Other Year Thereafter

Adaptation Letter of Intent

### Preliminary Proposal Due Date(s) (*required*) (due by 5 p.m. submitter's local time):

April 12, 2017

Second Wednesday in April, Every Other Year Thereafter

Institutional Transformation Preliminary Proposal

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

January 11, 2017

Second Wednesday in January, Every Other Year Thereafter

Partnerships Full Proposal

September 13, 2017

Second Wednesday in September, Every Other Year Thereafter

Adaptation full proposal

January 17, 2018

Third Wednesday in January, Every Other Year Thereafter

Institutional Transformation full proposal

### Full Proposal Target Date(s):

March 15, 2017

ADVANCE Resource and Coordination Network

## IMPORTANT INFORMATION AND REVISION NOTES

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- Focus on diversity among women faculty: The ADVANCE program is centrally focused on funding projects to support systemic change for gender equity in STEM academic careers. Barriers to gender equity may not be identical for all groups of women faculty in science, technology, engineering, and mathematics (STEM) disciplines, however. For example, African-American women, Hispanic/Latina women, and Native American women are underrepresented as tenured and tenure-track faculty in STEM disciplines compared to white women, and the challenges to recruitment, retention, and advancement may not be the same for these groups of women. All ADVANCE proposals are expected to address intersectionality and should offer strategies to promote gender equity for all faculty. Intersectionality is a concept found in the social sciences which recognizes that gender does not exist in isolation from other characteristics, such as race/ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc. Note the additional review criterion in this solicitation related to this expectation.
- Preliminary proposals for **Institutional Transformation (IT)** are required: Preliminary proposals for the **IT** track are required to be submitted in FastLane by the deadline for preliminary proposals. Only one preliminary proposal can be submitted from a non-profit two-year or four-year academic institution. Preliminary proposals will be used to identify academic institutions proposing potentially innovative organizational change strategies which will be invited to submit full **IT** proposals.
- **Adaptation** track (replaces the IT-Catalyst track to support the adaptation and implementation of proven systemic change strategies to address gender equity in STEM academic careers): The **Adaptation** track supports the adaptation and implementation of proven organizational change strategies within a non-profit two-year or four-year academic institution that has not had an **IT** award. **Adaptation** awards may also be made to a STEM organization to implement systemic change strategies focused across all STEM disciplines, several STEM disciplines, or within one STEM discipline.
- **Partnership** track (replaces the PLAN track): The **Partnership** track will support partnerships of two or more academic institutions and/or STEM organizations to increase gender equity in STEM academic careers through systemic change strategies. Partnering STEM organizations can include any entity eligible for NSF support. Projects should have national or regional impact.
- There are two other opportunities included in this solicitation: The call for ADVANCE Resource and Coordination Network proposals and for ADVANCE Longitudinal Evaluation proposals.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 17-1)*, which is effective for proposals submitted, or due, on or after January 30, 2017.

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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#### Program Title:

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

#### Synopsis of Program:

Despite significant increases in the proportion of women pursuing science, technology, engineering, and mathematics (STEM) doctoral degrees, women are significantly underrepresented as faculty, particularly in upper ranks, and in academic administrative positions, in almost all STEM fields. The problems of recruitment, retention, and advancement that are the causes of this underrepresentation vary by discipline and across groups of women faculty (e.g., by race/ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, and faculty appointment type). The ADVANCE program is designed to foster gender equity through a focus on the identification and elimination of organizational barriers that impede the full participation and advancement of all women faculty in academic institutions. Organizational barriers that inhibit equity may exist in areas such as policy, practice, culture, and organizational climate. For example, practices in academic departments that result in the inequitable allocation of service or teaching assignments may impede research productivity, delay advancement and create a culture of differential treatment and rewards. Policies and procedures that do not mitigate implicit bias in hiring, tenure, and promotion decisions could mean that women and underrepresented minorities are evaluated less favorably, perpetuating their underrepresentation and contributing to a climate that is not inclusive.

The goals of the ADVANCE program are (1) to develop systemic approaches to increase the representation and advancement of women in academic STEM [1] careers; (2) to develop innovative and sustainable ways to promote gender equity that involve both men and women in the STEM academic workforce; and (3) to contribute to the research knowledge base on gender equity and the intersection of gender and other identities in STEM academic careers. The ADVANCE program contributes to the development of a more diverse science and engineering workforce because of the focus on equity for STEM academic faculty who are educating, training, and mentoring undergraduate and graduate students and postdoctoral scholars.

There are three program tracks. All projects are expected to build on prior ADVANCE work and gender equity research and literature to broaden the implementation of organizational and systemic strategies to foster gender

equity in STEM academic careers. All ADVANCE proposals are expected to recognize that gender does not exist in isolation from other characteristics, such as race/ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc., and should offer strategies to promote gender equity for all faculty:

- The **Institutional Transformation (IT)** track supports the development of *innovative* organizational change strategies to produce comprehensive change within one non-profit two-year or four-year academic institution across all STEM disciplines. **IT** projects are also expected to contribute new research on gender equity in STEM academics. Projects that do not propose innovative strategies may be more appropriate for the **Adaptation** track.
- The **Adaptation** track supports the adaptation and implementation of evidence-based organizational change strategies, ideally from among those developed and implemented by ADVANCE projects. **Adaptation** awards may support the adaptation and implementation of proven organizational change strategies within a non-profit two-year or four-year academic institution that has not had an ADVANCE **IT** award. **Adaptation** awards may also be made to a STEM organization to implement systemic change strategies focused across all STEM disciplines, several STEM disciplines, or within one STEM discipline.
- The **Partnership** track will support partnerships of two or more non-profit academic institutions and/or STEM organizations to increase gender equity in STEM academics. Projects should have national or regional impact and result in systemic change within one STEM discipline, several STEM disciplines, or all STEM disciplines. Partnering STEM organizations can include any entity eligible for NSF support. Partners may include professional societies, industry, non-profit organizations, publishers, policy and research entities, state systems of higher education, higher education organizations, as well as institutions of higher education. **Partnership** proposals must include a final year focused on sustainability and/or scale-up, communication, and evaluation.

**For all proposals, ADVANCE is interested in supporting a range of non-profit academic institution types including:** 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, Alaska Native Institutions, Predominantly Black Institutions and Non-tribal, Native American Serving Institutions), women's colleges, institutions primarily serving persons with disabilities, and master's and doctoral level institutions.

**ADVANCE does not provide fellowships, research grants, or travel grants to individual students, postdocs, or faculty.** Undergraduate STEM opportunities can be found at [stemundergrads.science.gov](http://stemundergrads.science.gov) and graduate STEM opportunities at [stemgradstudents.science.gov](http://stemgradstudents.science.gov).

[1] All STEM fields supported by NSF are included in the ADVANCE program. STEM includes the learning, social, behavioral, and economic sciences. The program does not include clinical science faculty.

#### 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.*

- Jessie DeAro, Program Officer, telephone: (703) 292-5350, email: [ADVANCE@nsf.gov](mailto:ADVANCE@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 --- Office of International Science and Engineering
- 47.083 --- Office of Integrative Activities (OIA)

## Award Information

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

**Estimated Number of Awards:** 18 to 26

The total number of awards to be made under this solicitation is estimated to be between 18 and 26 over two fiscal years. NSF expects to make: approximately five **Institutional Transformation** five-year awards up to \$3,000,000 for five years; approximately six **Adaptation** awards up to \$1,000,000 for three years; and approximately six **Partnership** awards up to \$1,000,000 for three to five years. In addition, one ADVANCE Resource and Coordination Network award may be made for \$1M per year for five years, and up to four ADVANCE Longitudinal Evaluation awards may be made each year of this solicitation.

**Anticipated Funding Amount:** \$22,200,000

Pending availability of funds, NSF anticipates having up to \$22,200,000 available over a period of two fiscal years (FY 2017-FY2018) for support of the ADVANCE portfolio. Up to \$12,100,000 will be available for the FY2017 competition and approximately \$10,100,000 will be available for proposals due under the FY2018 competition.

## Eligibility Information

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## Who May Submit Proposals:

Proposals may only be submitted by the following:

- **IT-Preliminary and Institutional Transformation (IT)** proposals are accepted from public and private, non-profit, universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US, referred to in this solicitation as non-profit academic institutions.
  - Past or current ADVANCE **IT** awardees are not eligible.
  - Due to the nature of an institutional change grant, partnerships of multiple academic institutions are not accepted unless the institutions are in the same State system or are multiple campuses of one institution and thus share common governance.

**Adaptation** proposals are accepted from either a non-profit non-academic organization, or from a public and private, non-profit, university or two- and four-year college (including a community college) accredited in, and having a campus located in, the US, referred to in this solicitation as a non-profit academic institution.

- Past or current ADVANCE **IT** awardees are not eligible.
- Proposals with more than one organization or academic institution should be submitted to the **Partnership** track.

**Partnership** proposals must include two or more partnering organizations and may include **non-profit academic institutions and/or non-profit, non-academic organizations**.

- Prior ADVANCE support is **not necessary** to participate.
- Past or current ADVANCE grant recipients are eligible to participate in **Partnership** proposals.

**ADVANCE Resource and Coordination Network** proposals may be submitted by a single non-profit academic institution or a non-profit, non-academic organization located in the US or by a collaborative partnership among institutions and/or organizations.

**ADVANCE Longitudinal Evaluation** proposals may be submitted by three or more non-profit academic institutions located in the US that have had ADVANCE **IT** grants whose official grant period, including no-cost extensions, ended more than five years ago.

## Who May Serve as PI:

There are no restrictions or limits.

## Limit on Number of Proposals per Organization: 1

One for **IT-Preliminary, Institutional Transformation (IT), or Adaptation**; no limit for **Partnership, ADVANCE Resource and Coordination Network, and ADVANCE Longitudinal Evaluation**:

- **IT-Preliminary**: Non-profit academic institutions are allowed to submit one preliminary proposal in the competition.
- **IT and Adaptation**: Non-profit academic institutions are allowed to submit one proposal in the competition to **either** the **IT** (if invited after the preliminary proposal stage) or the **Adaptation** track but not both.
- Non-profit, non-academic organizations are allowed to submit one **Adaptation** proposal in the competition and may also be a partner on **Partnership** and/or ADVANCE Resource and Coordination Network proposals.
- A non-profit academic institution or non-profit, non-academic organization may be a partner on multiple **Partnership** proposals in the same competition but lead only one and may also be a partner on an ADVANCE Resource and Coordination Network and/or an ADVANCE Longitudinal Evaluation proposal if appropriate.

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

There are no restrictions or limits.

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## 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 Proposals**: Submission of Preliminary Proposals is required. Please see the full text of this solicitation for further information.
- **Full Proposals**:
  - Full Proposals submitted via FastLane: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).
  - 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: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://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. submitter's local time):

December 14, 2016

Second Wednesday in December, Every Other Year Thereafter

Partnerships Letter of Intent

August 09, 2017

Second Wednesday in August, Every Other Year Thereafter

Adaptation Letter of Intent

- **Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. submitter's local time):

April 12, 2017

Second Wednesday in April, Every Other Year Thereafter

Institutional Transformation Preliminary Proposal

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

January 11, 2017

Second Wednesday in January, Every Other Year Thereafter

Partnerships Full Proposal

September 13, 2017

Second Wednesday in September, Every Other Year Thereafter

Adaptation full proposal

January 17, 2018

Third Wednesday in January, Every Other Year Thereafter

Institutional Transformation full proposal

- **Full Proposal Target Date(s):**

March 15, 2017

ADVANCE Resource and Coordination Network

## Proposal Review Information Criteria

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### 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

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### 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.

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## I. INTRODUCTION

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The ADVANCE program is designed to address gender equity through the identification and elimination of organizational barriers that impede the full participation and advancement of women in academic institutions. Proposals should identify key barriers to gender equity, recognizing that these may exist in multiple forms (e.g., in policy, practice, culture, and climate) and design or adapt strategies to address these barriers. Because the experiences of women in science, technology, engineering and mathematics (STEM) academic careers may be influenced by many characteristics in addition to gender, all ADVANCE proposals are expected to take this into account in proposal design, research, evaluation, and data (see additional review criteria). These characteristics might include race, ethnicity, sexual orientation, disability status, foreign-born and foreign-trained status, and faculty appointment type, and/or other characteristics relevant to the systemic gender equity issues to be addressed in the ADVANCE proposal.

ADVANCE projects require multidisciplinary teams with a range of expertise to conceptualize, implement, and evaluate the project. The team of principal investigators is expected to be representative of the theoretical, methodological and contextual expertise necessary based on the proposed project activities, research, and evaluation.

ADVANCE proposals may include financial support for students and postdoctoral scholars who are doing work on the ADVANCE project implementation or on the ADVANCE research. However, ADVANCE proposals cannot include programming or financial support for STEM students or postdoctoral scholars not directly working to implement the ADVANCE project.

## II. PROGRAM DESCRIPTION

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1. **Institutional Transformation (IT):** Five-year, *innovative*, institution-wide projects with a comprehensive plan to foster gender equity for STEM faculty, inclusive of all STEM disciplines.

**Project Scope:** *IT* awards support *innovative*, comprehensive strategies for systemic change in a single non-profit academic institution. Two-year institutions, predominantly undergraduate institutions, master's level institutions, and Minority-Serving Institutions are particularly encouraged to apply for an *IT* award. The proposed issues that will be addressed should be based on institutional data and analysis that show a differential impact by gender on faculty outcomes such as but not limited to: hiring, tenure, promotion, salary, leadership participation, service work, job satisfaction, work-life balance, and research and teaching productivity. All STEM faculty types (e.g., ranked faculty, adjunct faculty, basic research faculty) should be included in the project. *IT* projects are expected to include all departments and schools with STEM fields. To the extent possible and to

extent relevant to the proposal, data should be disaggregated by the multiple characteristics to be addressed by the project (race, ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc.), in addition to gender. The **IT** project must include a rigorous research study related to the ADVANCE project that contributes to knowledge about gender equity in STEM academics. The study may be based in the methods and theories from the social, behavioral, learning, or economic sciences. Projects that do not propose innovative strategies may be more appropriate for the **Adaptation** track.

2. **Adaptation:** Three-year projects to adapt and implement proven organizational and systemic change strategies to foster gender equity for STEM faculty.

**Project Scope:** The **Adaptation** track supports the adaptation and implementation of proven organizational and systemic change strategies, ideally from among those developed and implemented by previous ADVANCE projects. This track recognizes that during the history of ADVANCE, many grantees have developed strategies that can be implemented by others to address issues of gender equity. **Adaptation** awards may be made to non-profit academic institutions that have not had an ADVANCE **IT** award. Two-year institutions, predominantly undergraduate institutions, master's level institutions, and Minority-Serving Institutions are particularly encouraged to apply for an **Adaptation** award. Projects at academic institutions are expected to include all departments and schools with STEM faculty. In addition, **Adaptation** awards can be made to STEM organizations eligible for NSF support that are not academic institutions. These types of projects may focus on all STEM disciplines, several STEM disciplines, or only one STEM discipline but must propose to implement organizational and systemic change strategies to enhance gender equity in STEM academics. Both types of **Adaptation** projects may address a specific issue (or set of issues) of gender inequity supported by an analysis of institutional data and other relevant data. To the extent possible, data should be disaggregated by the multiple characteristics to be addressed by the project (race, ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc.), in addition to gender.

3. **Partnerships:** Three to five-year projects involving two or more non-profit academic institutions and/or STEM organizations to undertake systemic change projects to enhance gender equity in STEM academics.

**Partners:** Partnering STEM organizations can include any entity eligible for NSF support. Partners should be strategically selected to meet the goals of the project and may include professional societies, industry, non-profit organizations, publishers, policy and research entities, state systems of higher education, higher education organizations, as well as academic institutions.

**Project Scope:** **Partnership** projects can focus on all STEM disciplines, several STEM disciplines, or only one STEM discipline. Projects should have national or regional impact and result in systemic change. **Partnership** projects are expected to build on prior ADVANCE work and the gender equity and organizational change research literature to broaden the adaptation of organizational change strategies to enhance gender equity in STEM academics. A wide range of activities can be undertaken as part of a **Partnership** project. Previous or current funding from ADVANCE is not a prerequisite.

## OTHER FUNDING OPPORTUNITIES

**ADVANCE Resource and Coordination Network (ARC Network):** The goal of the ARC Network is to advance gender equity for STEM faculty nationally by facilitating the adoption and implementation of evidence-based systemic changes by institutions of higher education and other STEM organizations that affect those in STEM academic careers. The ARC network is not intended to support primary research. The ARC Network is expected to have the range of expertise and the infrastructure needed to implement the network activities which may require a partnership among multiple existing organizations.

The ARC Network is expected to propose a comprehensive program of change to enhance gender equity for STEM faculty in the U.S. The ARC Network should be designed to:

- Facilitate open communication and exchange of information and resources between and among gender equity researchers and research users.
- Nurture and build the community of those working to enhance gender equity and reduce unnecessary duplication of efforts in the development of tools and resources.
- Facilitate access to gender equity research and the translation of gender equity research knowledge into practice by a wide range of institution types, including community colleges, predominantly undergraduate institutions, master's and doctoral level institutions, and minority-serving institutions.
- Facilitate access to research and evidence-based training, tools, and materials for decision-makers influential in STEM academic careers (Chairs, Deans, other administrators, senior STEM faculty, faculty senate leaders, faculty union leaders, STEM research funders, professional societies, editors and publishers, etc.).
- Develop community standards for research and evaluation instrumentation, data, and metadata related to gender equity and institutional climate and culture.
- Coordinate regular meetings (both virtual and in-person) on gender equity in STEM academics designed for broad audiences that include researchers and practitioners from many sectors including NSF funded grantees, particularly past and current ADVANCE grantees. Coordination and infusion with other related meetings is highly encouraged.
- Maintain an ARC Network web site (building on efforts already made with the ADVANCE portal and individual grant websites) and employ the creative use of social media.

Implement other activities that will support the ARC Network goal and include internal and external evaluation plans.

ADVANCE anticipates supporting one ARC Network project for five years. Proposals may request a total budget of \$5 million, for an average of \$1 million each year for five years. Continued funding in years four and five are contingent on satisfactory progress as determined from annual reports and potential site visits as well as the availability of funds. Continued funding may be reduced or eliminated if performance is not satisfactory. Potential PIs are advised to discuss the ARC Network proposal with the ADVANCE program officers before submitting. Proposers should follow the NSF Proposal & Award Policies & Procedures Guide (PAPPG) when preparing and submitting an ARC Network proposal (<https://www.nsf.gov>). Note that there is a target date for ARC Network proposals in the solicitation.

**ADVANCE Longitudinal Evaluation (ALE):** ADVANCE anticipates supporting up to four evaluation and impact projects per year of this solicitation to study and document indicators of organizational change at past ADVANCE IT institutions. Collaborations of three or

more institutions whose official ADVANCE IT grant period, including no-cost extensions, ended more than five years ago are required. The intention is to develop shared metrics among the partnering institutions to evaluate the long term impact of the ADVANCE IT grants on organizational systems, culture, and climate in these institutions. Coordination with the ARC Network, if one is awarded, would be appropriate. When possible, the evaluation plan should include data from comparable institutions that did not have ADVANCE funding during the same timeframe. Evaluation grants are submitted as unsolicited proposals. Pls are advised to discuss the ALE proposal with the ADVANCE program officers before submitting. Proposers should follow the NSF Proposal & Award Policies & Procedures Guide (PAPPG) when preparing and submitting an ALE proposal (<https://www.nsf.gov>).

**Other opportunities:** ADVANCE may fund conferences; EARly-concept Grants for Exploratory Research (EAGER), grants for Rapid Response Research (RAPID); and grant supplements for existing awards. Such proposals may be submitted as described in the NSF Proposal & Award Policies & Procedures Guide (PAPPG), which is available at <https://www.nsf.gov>. Pls are advised to discuss any proposal ideas with the ADVANCE program officers before submitting.

- For conferences, see PAPPG, II.E.7.
- For Early-concept Grants for Exploratory Research (EAGER), see PAPPG II.E.2.
- For grants for Rapid Response Research (RAPID), see PAPPG, II.E.1.
- For supplemental funding, see PAPPG, Chapter VI.E.4

### III. AWARD INFORMATION

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The total number of awards to be made under this solicitation is estimated to be between 18 and 26 over two fiscal years. NSF expects to make: approximately five **Institutional Transformation** five-year awards up to \$3,000,000 for five years; approximately six **Adaptation** awards up to \$1,000,000 for three years; and approximately six **Partnership** awards up to \$1,000,000 for three to five years. In addition, one ADVANCE Resource and Coordination Network award may be made for \$1M per year for five years, and up to four ADVANCE Longitudinal Evaluation awards may be made each year of this solicitation.

### IV. ELIGIBILITY INFORMATION

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#### Who May Submit Proposals:

Proposals may only be submitted by the following:

- **IT-Preliminary and Institutional Transformation (IT)** proposals are accepted from public and private, non-profit, universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US, referred to in this solicitation as non-profit academic institutions.
  - Past or current ADVANCE **IT** awardees are not eligible.
  - Due to the nature of an institutional change grant, partnerships of multiple academic institutions are not accepted unless the institutions are in the same State system or are multiple campuses of one institution and thus share common governance.

**Adaptation** proposals are accepted from either a non-profit non-academic organization, or from a public and private, non-profit, university or two- and four-year college (including a community college) accredited in, and having a campus located in, the US, referred to in this solicitation as a non-profit academic institution.

- Past or current ADVANCE **IT** awardees are not eligible.
- Proposals with more than one organization or academic institution should be submitted to the **Partnership** track.

**Partnership** proposals must include two or more partnering organizations and may include **non-profit academic institutions and/or non-profit, non-academic organizations**.

- Prior ADVANCE support is **not necessary** to participate.
- Past or current ADVANCE grant recipients are eligible to participate in **Partnership** proposals.

**ADVANCE Resource and Coordination Network** proposals may be submitted by a single non-profit academic institution or a non-profit, non-academic organization located in the US or by a collaborative partnership among institutions and/or organizations.

**ADVANCE Longitudinal Evaluation** proposals may be submitted by three or more non-profit academic institutions located in the US that have had ADVANCE **IT** grants whose official grant period, including no-cost extensions, ended more than five years ago.

#### Who May Serve as PI:

There are no restrictions or limits.

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

One for **IT-Preliminary, Institutional Transformation (IT)**, or **Adaptation**; no limit for **Partnership, ADVANCE Resource and Coordination Network, and ADVANCE Longitudinal Evaluation**:



- **IT-Preliminary:** Non-profit academic institutions are allowed to submit one preliminary proposal in the competition.
- **IT and Adaptation:** Non-profit academic institutions are allowed to submit one proposal in the competition to either the **IT** (if invited after the preliminary proposal stage) or the **Adaptation** track but not both.
- Non-profit, non-academic organizations are allowed to submit one **Adaptation** proposal in the competition and may also be a partner on **Partnership** and/or ADVANCE Resource and Coordination Network proposals.
- A non-profit academic institution or non-profit, non-academic organization may be a partner on multiple **Partnership** proposals in the same competition but lead only one and may also be a partner on an ADVANCE Resource and Coordination Network and/or an ADVANCE Longitudinal Evaluation proposal if appropriate.

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

There are no restrictions or limits.

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### A. Proposal Preparation Instructions

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#### Letters of Intent (required):

Letters of intent are required for **Adaptation** and **Partnership** proposals. The letters of intent will be used for planning the review of proposals. Letters of intent must clearly indicate the specific track for which the proposers are applying. No formal invitation to submit a full proposal will be issued after the letter of intent has been received. Only one letter of intent for **Adaptation** proposal can be submitted from a non-profit academic institution that has not had an ADVANCE IT award before or from a STEM organization. A separate letter of intent for each planned **Partnership** proposal is required even if submitted by the same organization or principal investigator.

Letters of Intent must include:

**Project Synopsis:** Provide a description of the gender equity problem(s) in STEM academics to be addressed, the proposed project and the ADVANCE track for which the proposal will seek funding.

**Other Comments Input Text Area:** List senior project personnel with a brief description of their proposed roles. For the **Partnership** track, list partner institutions and organizations, 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:

- Submission by an Authorized Organizational Representative (AOR) is not required when submitting Letters of Intent.
- Only one Letter of Intent can be submitted by an organization for the **Adaptation** track.

Organizations may be part of more than one **Partnership** Letter of Intent.

All Letters of Intent must be submitted through FastLane.

**Preliminary Proposals (required):** Preliminary proposals are required and must be submitted via the NSF FastLane system, even if full proposals will be submitted via Grants.gov.

Eight-page preliminary proposals for the **Institutional Transformation (IT)** track are required to be submitted in FastLane by the deadline for preliminary proposals. Only one preliminary proposal can be submitted from an institution of higher education (IHE) that has not previously had an **ADVANCE IT** award.

Please include the following information in your preliminary proposal:

1. A description of the institutional gender equity issues at your institution, supported by qualitative and quantitative data and analysis;
2. A discussion of the underlying causes of these problems and an outline of the organizational change strategies to be implemented. The strategies must be linked to the institutional gender equity issues you have identified. Be sure to **highlight the innovative strategies** to be developed and implemented (projects that do not propose innovative strategies may be more appropriate for the **Adaptation** track); and
3. A description of the proposed research on gender equity in STEM academics, including the links between the research and the proposed activities.

We expect that ADVANCE projects will take account of the fact that problems of gender equity vary by discipline and across groups of women faculty (race/ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc.). Disaggregated data relevant to the proposal scope and strategies is expected. We estimate that about two pages of the eight page limit will be devoted to relevant institutional data and data analysis to identify the gender equity issues to be addressed. References are not included in the eight-page limit. Letters of collaboration which articulate specific commitments to the proposed project from institutional leadership should be included as supplementary documents in the preliminary proposal. Letters of

collaboration from institutional leadership should address how institutional leadership, particularly new leadership, will be informed and involved with the ADVANCE project between the preliminary proposal and the full proposal if invited. Other supplementary documents will not be accepted.

Preliminary proposals will be reviewed by a peer review panel using the NSF merit review criteria and the additional review criterion in this solicitation. NSF will make decisions to invite or not invite a full proposal submission to the **Institutional Transformation** track and will notify proposers.

**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 Proposal & Award Policies & Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg). Paper copies of the PAPPG 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: ([https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://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. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

## Project description preparation guidance for full proposals

### 1. Institutional Transformation (IT)

#### Institutional Context, Data, and Problem Analysis

Contextual information on the proposing institution, including a brief institutional profile, is important to explain the potential impact of the proposed project and provide justification for the specific activities outlined in the proposal. 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 coordinated with or incorporated into the proposed project initiatives. Letters of collaboration from those involved in these related activities are appropriate to include in supplementary documents. **Funding cannot be requested to replace existing funding for ongoing activities at the institution.**

Comprehensive institutional data on faculty are required in the project description of IT proposals and not as supplementary documents. Proposals should present data on the status of all STEM faculty and compare data to national statistics when possible. To the extent possible and to the extent relevant to the proposed activities, data should be disaggregated by the multiple characteristics in addition to gender to be addressed by the project (see additional review criterion). It is suggested that proposers review the "ADVANCE Indicators Toolkit" for guidance on the types of data that can be included. The toolkit is available at the ADVANCE portal website at [http://www.advance.vt.edu/measuring\\_progress/tag\\_toolkits.html](http://www.advance.vt.edu/measuring_progress/tag_toolkits.html). The toolkit data are not required and some data elements may not be relevant to all institution types; your data should be tailored to your institution and project activities.

The qualitative and quantitative data should provide the reviewers with a clear understanding of the current status of women in STEM academics at the institution and the gendered organizational issues that differentially affect women in STEM. Proposals should articulate how this data has been analyzed to understand the reasons for gender inequity identified in the data. There may be multiple causes in policies, practices, climate, and culture, and the causes and solutions may be different for different groups of women.

#### Project Activities

Proposals should fully describe the strategies to be implemented and the evidence that these strategies will address the identified gender equity issues. One or more of the strategies to be implemented is expected to be innovative in design, implementation, or both; projects that do not propose innovative strategies are more appropriate for the **Adaptation** track. The proposed strategies, drawn from relevant learning, social, behavioral, and economic science research, must be fully described and linked to resolving the gendered organizational issues identified in the problem analysis. Specific strategies may be required depending upon other characteristics in addition to gender (race, ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc.). Both men and women should be involved in the design and implementation of the project and be participants in the project activities. **IT** awards should create positive, sustainable, and permanent change in the institution.

#### Research on Gender Equity in STEM Academics

**IT** proposals are required to include a five-page supplementary document that describes, in detail, the scientific research project. Research investigating the innovative aspects of the project is especially encouraged – but is not intended to take the place of project evaluation. It should be clear in the proposal which team members and/or consultants will undertake the research and their relevant

qualifications and skills in areas such as learning, social, behavioral and economic sciences or policy analysis. The supplemental document must include information relevant to the proposed study, such as: 1) the disciplinary and conceptual framework for the research; 2) the research questions to be answered; 3) the proposed methods to answer these questions; 4) the expected findings; and 5) an explanation of how the research considers and/or expects differences across multiple characteristics such as race, ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, and/or faculty appointment type, in addition to gender.

### **Communication Strategy**

One of the objectives of the NSF ADVANCE program is to contribute to the knowledge base about organizational change to enhance gender equity. Therefore, the communication of results and diffusion of knowledge gained to other organizations and institutions that can implement reforms based on what has been learned is an essential part of an ADVANCE project. The proposal must include a detailed communication strategy that includes an ADVANCE project 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, engagement activities, web sites and professional association conferences. Simply making materials, tools, research, and practices available to others is not an effective or sufficient communication strategy.

### **Project Evaluation**

IT proposals are required to include a formative and summative evaluation plan outline with internal and external components designed to illuminate the impact of the IT 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 the *impact of the project activities* on gender equity in STEM academics at the institution, including achievement of benchmarks and indicators of organizational, culture, and climate change. The collection of activity participation data and participants' evaluations of activities alone are not sufficient for impact evaluation.

An individual with evaluation expertise at the institution, but who is not directly involved in the implementation of the project, may do the internal evaluation. The external evaluator must be a qualified evaluator who will work with the program to develop an impact analysis. The external evaluator must not be involved in the implementation of the project or be an employee of the institution. The internal and external evaluation components must be well coordinated in order to minimize data collection and to share information with each other and the project management team. Additional information about project evaluation is available at the following website: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf02057](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf02057).

### **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. Letters of collaboration from key administrators and partners are required with IT proposals and should be submitted as supplementary documents.

Sustainability should be considered at every stage of project implementation and should become a specific project activity with dedicated staff time at least from the third-year site visit through to the end of the project. Proposers should use the Facilities, Equipment and Other Resources section of the proposal to demonstrate such sustainability.

### **Project Management**

Institutional Transformation proposals must include a management plan and timeline including 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 as a one-page supplementary document.

The roles, 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 STEM expertise including social and behavioral scientists.

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. The Internal Committee should not be involved in the day to day implementation of ADVANCE activities. Members might include key stakeholders for sustainability of the project, those who will need to cooperate with the project to ensure success (such as institutional research and human resource offices), and others who can champion the project within the institution, such as senior STEM faculty and leaders.

IT projects are required to have an External Advisory Committee, with members external to the institution, who can give unbiased feedback on the implementation of the project and make suggestions to improve project outcomes. Members could include experts in areas relevant to the project activities and leaders from other academic institutions, STEM organizations, and/or industry. The External Advisory Committee cannot replace the requirement for external evaluation for the project.

### **Supplementary Documents**

Only the following documents may be submitted as Supplementary Documents in IT proposals:

- data management plan (NSF required)
- postdoctoral fellow mentoring plan if budget includes support for postdocs (NSF required)
- letters of collaboration including from key administrative leadership (program required)
- one-page organizational chart that illustrates how the project fits into the institution's hierarchy (recommended)
- external evaluator curriculum vitae (or vita) (program required)
- the five-page supplementary document devoted to the description of the gender equity research study (program required)

## **2. Adaptation**

### **Institutional or Disciplinary Context, Data, and Problem Analysis**

Contextual information on the focus of the project, including a brief organizational profile, is important to explain the potential impact of the proposed project and provide justification for the specific activities outlined in the proposal. 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 coordinated with or incorporated into the proposed project initiatives. Letters of collaboration from those involved in these related activities are appropriate to include in supplementary documents. **Funding cannot be requested to replace existing funding for ongoing activities.**

Data must be included in the project description of **Adaptation** proposals and not in supplementary documents. The qualitative and quantitative data should provide the reviewers with a clear understanding of the current status of women in STEM academics relevant to the project and the gender equity problem(s) to be addressed with the proposed project. Proposals should demonstrate that the available data and literature has been analyzed to understand the reasons for gender equity problems. There may be multiple causes in policies, practices, climate and cultures and the causes and solutions may be different for different groups of women.

To the extent possible and to the extent relevant to the proposed activities, proposals should compare data to national statistics and disaggregate data by the multiple characteristics in addition to gender (race, ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc.). Proposers from academic institutions can review the "ADVANCE Indicators Toolkit" for guidance on the types of data that can be included. The toolkit is available at the ADVANCE portal website at <http://www.advance.vt.edu/>. The toolkit data are not required and some data elements may not be relevant to all institution types; your data should be tailored to your academic institution and project activities.

### Activities Description

The proposed strategies must be fully described and linked to resolving the gender equity problem(s) identified in the data analysis and be based on relevant learning, social, behavioral, and economic science research. Proposals should explain adaptations that will be required, and the evidence that these strategies will address the previously identified causes of the gender equity issues. Because the experiences of women in STEM academic careers may be influenced by many characteristics in addition to gender, ADVANCE proposals are expected to take this into account when designing activities (see additional review criterion). Both men and women should be involved in the design and implementation of the project and be participants in the project activities. **Adaptation** awards should create positive, sustainable, and permanent change in the academic institution or STEM organization and/or within the targeted STEM disciplines.

### Communication Strategy

One of the objectives of the NSF ADVANCE program is to contribute to the knowledge base about organizational change to enhance gender equity. Therefore, the communication of results and diffusion of knowledge gained to other organizations and institutions that can implement reforms based on what has been learned is an essential part of an ADVANCE project. The proposal must include a detailed communication strategy that includes an ADVANCE project 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, engagement activities, web sites and professional association conferences. Simply making materials, tools, research, and practices available to others is not an effective or sufficient communication strategy.

### Project Evaluation

It is required that each project include a formative and summative evaluation plan developed and implemented by an internal and/or external evaluator with appropriate expertise. 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 the impact of the project activities on gender equity in STEM academics and 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 evaluations of activities alone are not sufficient for project evaluation.** Project evaluation should include an impact analysis. Additional information about project evaluation is available at the following website: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf02057](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf02057).

### Organizational Commitment and Sustainability

Organizational commitment from administrators and leaders to the proposed project activities is vital for successful projects and must be demonstrated in the proposal. Letters of collaboration from key administrators and leaders are required with **Adaptation** proposals and should be submitted as supplementary documents.

Sustainability should be considered at every stage of project implementation and should become a specific project activity with dedicated staff time at least in the last year of the project. Proposers should use the Facilities, Equipment and Other Resources section of the proposal to demonstrate such sustainability.

### Project Management

**Adaptation** proposals must include a management plan and timeline including 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 organization's hierarchy may be included as a one-page supplementary document.

**Adaptation** projects should include an Internal Steering Committee or Internal Advisory Committee. Members might include key stakeholders for sustainability of the project, those who will need to cooperate with the project to ensure success such as institutional research and human resource offices, and others who can champion the project within the institution or organization such as senior STEM faculty and leaders.

**Adaptation** projects may benefit from an External Advisory Committee, with members external to the organization who can give unbiased feedback on the implementation of the project and make suggestions to improve project outcomes. Members could include experts in areas relevant to the project activities and leaders from academic institutions or industry. Advisory committees should not be used to replace project evaluation requirements.

### Supplementary Documents

Only the following documents may be submitted as Supplementary Documents in **Adaptation** proposals:

- data management plan (NSF required)
- postdoctoral fellow mentoring plan if budget includes support for postdocs (NSF required)
- letters of collaboration including from organizational leadership (program required)
- one-page organizational chart that illustrates how the project fits into the organization's hierarchy (recommended)
- external evaluator curriculum vita(s) (if applicable)

### 3. Partnership

#### Context, Data, and Problem Analysis

Contextual information to explain the STEM academic gender equity issue(s) to be addressed by the **Partnership** project is important to demonstrate the potential impact of the proposed project. This information should include a description of the current and past activities of partners that are related to the proposed project, how these activities will be incorporated into the proposed project initiatives, and how they informed the proposed activities. **Funding cannot be requested to fund ongoing existing activities.**

Project-related data on the STEM gender equity issues to be addressed as well as on the partners should be provided. Proposals should compare data to national statistics when possible and disaggregate data by the multiple characteristics in addition to gender to be addressed by the project (race, ethnicity, disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc.). The context and data should provide the reviewers a clear understanding of the role of each partner and the resources and qualifications that each partner brings to the project to address the gender equity issues. Proposals should demonstrate that this data has been analyzed to understand the reasons for any gender equity problems identified in the data. There may be multiple causes in policies, practices, climate and cultures and the causes and solutions may be different for different groups of women.

#### Commitment and Sustainability

Commitment from key stakeholders and leaders to the proposed **Partnership** project is vital for successful implementation and sustainability. Letters of collaboration from each partner's institutional or organizational leadership are required. Letters of collaboration from other decision-making bodies such as advisory boards may also be appropriate to include. Letters of collaboration should be submitted as supplementary documents.

Although, activities to ensure sustainability (and/or scale up if appropriate) can be included throughout the project, the final year of the project must focus on sustainability and/or scale up, communication of outcomes and lessons learned, and evaluation of the project's impact on gender equity in STEM academics. Proposers should use the Facilities, Equipment and Other Resources section of the proposal to demonstrate such sustainability.

#### Activities Description

**Partnership** projects are expected to build on prior ADVANCE work and the gender equity and organizational change research literature to broaden the adaptation of organizational change strategies to enhance gender equity in STEM academics. The goal of the project should be to broaden the adaptation of organizational or systemic change strategies to enhance gender equity in STEM academics. Projects should have national or regional impact. **Partnership** projects can focus on all STEM disciplines, several STEM disciplines, or only one STEM discipline. A wide range of activities can be undertaken as part of a **Partnership** project. Previous or current funding from ADVANCE is not a prerequisite. As noted before, the final year of the project must focus on sustainability and/or scale up, communication of outcomes and lessons learned, and evaluation of the project's impact on gender equity in STEM academics. Implementation activities should not be planned for the final year of the project. The role of each partner in the project implementation, management and evaluation should be clearly described.

#### Project Evaluation

It is required that each project include a formative and summative evaluation plan developed and implemented by an internal and/or external evaluator with appropriate expertise. 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 the impact of the project activities on gender equity in STEM academics and 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 evaluations of activities alone are not sufficient for project evaluation.** Project evaluation should include an impact analysis. Additional information about project evaluation is available at the following website: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf02057](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf02057).

#### Project Management

**Partnership** proposals must include a management plan and timeline that detail how project activities will be organized, implemented, analyzed, and reformulated for improvement as needed. 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. The final year of the project must focus on sustainability and/or scale-up to other organizations and partners, communication of outcomes and lessons learned, and evaluation of the project's impact on gender equity. No implementation activities should be planned. The **Partnership** team should include an appropriate mix of STEM experts in areas relevant to the project activities, and include representatives of key stakeholder groups and leaders from other organizations and academic institutions.

**Partnership** projects may incorporate an internal steering and/or an external advisory committee to provide input on the project implementation, help resolve project issues, and ensure that the project is on track for meeting project goals. The composition will depend on the design of the project - members could include STEM faculty and administrators, STEM organization leaders, providers of faculty services, gender equity researchers, and other individuals with needed expertise.

#### Supplementary Documents

Only the following documents may be submitted as Supplementary Documents in **Partnership** proposals:

- data management plan (NSF required)
- postdoctoral fellow mentoring plan if budget includes support for postdocs (NSF required)
- letters of collaboration including from key administrative leadership (program required)
- one-page organizational chart that illustrates how the project's partners will coordinate and fit into the partner organizations' hierarchies (recommended)
- external evaluator curriculum vita(s) (if applicable)

## B. Budgetary Information

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### Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

## C. Due Dates

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- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. submitter's local time):
  - December 14, 2016
  - Second Wednesday in December, Every Other Year Thereafter
  - Partnerships Letter of Intent
  - August 09, 2017
  - Second Wednesday in August, Every Other Year Thereafter
  - Adaptation Letter of Intent
- **Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. submitter's local time):
  - April 12, 2017
  - Second Wednesday in April, Every Other Year Thereafter
  - Institutional Transformation Preliminary Proposal
- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):
  - January 11, 2017
  - Second Wednesday in January, Every Other Year Thereafter
  - Partnerships Full Proposal
  - September 13, 2017
  - Second Wednesday in September, Every Other Year Thereafter
  - Adaptation full proposal
  - January 17, 2018
  - Third Wednesday in January, Every Other Year Thereafter
  - Institutional Transformation full proposal
- **Full Proposal Target Date(s)**:
  - March 15, 2017
  - ADVANCE Resource and Coordination Network

## D. FastLane/Grants.gov Requirements

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### For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions 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.

### 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://www.grants.gov/web/grants/applicants.html>. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical 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.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

## VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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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 PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: [https://www.nsf.gov/bfa/dias/policy/merit\\_review/](https://www.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 *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018*. 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 strategic objectives 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 must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of 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

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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. (PAPPG 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 PAPPG 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

There is one ADVANCE additional merit review criterion for all ADVANCE proposals:

Because the experiences of women in STEM academic careers may be influenced by many characteristics in addition to gender, all ADVANCE proposals are expected to take this into account in proposal design, research, evaluation, and data. Reviewers are asked to comment on how well the proposal addresses the intersection of gender with other characteristics relevant to the proposal such as: race, ethnicity, disability status, foreign-born and foreign-trained status, sexual orientation, and faculty appointment type, in both the intellectual merit and broader impacts of the proposal.

## B. Review and Selection Process

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

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. 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 strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

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. After an administrative review has occurred, Grants and Agreements Officers perform 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.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, 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.

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## VII. AWARD ADMINISTRATION INFORMATION

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### A. Notification of the Award

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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

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An NSF award consists of: (1) the award notice, 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 notice; (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 notice. 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 [https://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](https://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 *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

#### Special Award Conditions:

ADVANCE *Institutional Transformation* awards will be made as cooperative agreements. There will be a minimum of two site visits held: one toward the end of the first-year and one during the third-year of the five-year project. The purpose of the first-year site visit is to provide technical assistance (especially during the first year start up period). The purpose of the third-year site visit is to conduct an in depth evaluation of performance, assess progress toward goals, provide advice and recommendations for enhancing project performance, and to determine satisfactory progress and continuation of support for the project.

### C. Reporting Requirements

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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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 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 Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=papppg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=papppg).

**Institutional Transformation** awardees will be required to submit a mid-year report each project year in addition to the standard NSF reporting requirements. These reporting requirements will be included in the cooperative agreement that is binding between the awardee institution and the NSF. **Partnership** and **Adaptation** awardees will have the standard NSF reporting requirements unless awarded as continuing grants or cooperative agreements and additional reporting is considered to be required by the National Science Foundation. All ADVANCE reports are expected to include any available project evaluation reports from internal or external project evaluators, relevant project data and impact data, survey instruments, and other tools and materials developed by the project.

## VIII. AGENCY CONTACTS

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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:

- Jessie DeAro, Program Officer, telephone: (703) 292-5350, email: [ADVANCE@nsf.gov](mailto:ADVANCE@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

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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, "NSF Update" 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. "NSF Update" also is available on [NSF's website](#).

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

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## ABOUT THE NATIONAL SCIENCE FOUNDATION

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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* (FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 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 <https://www.nsf.gov>

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **For General Information** (NSF Information Center): (703) 292-5111
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  - or telephone: (703) 292-7827
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## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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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:

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