

# ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE)

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## PROGRAM SOLICITATION

NSF 19-552

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### REPLACES DOCUMENT(S):

NSF 16-594

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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):

May 15, 2019

Letter of Intent due for May 2019 Adaptation and Partnership competition

November 01, 2019

Letter of Intent for January 2020 Adaptation and Partnership competition

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

October 01, 2019

Target Date for IT-Preliminary proposals - preliminary proposals are only required for IHEs that want a chance to submit a full Institutional Transformation proposal

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

May 22, 2019

Adaptation and Partnership (FY 2019 competition)

January 15, 2020

Adaptation and Partnership (FY 2020 competition)

#### Full Proposal Target Date(s):

June 03, 2019

Catalyst proposals

March 02, 2020

Institutional Transformation proposals - only IHEs invited as a result of an IT-Preliminary proposal may submit a full IT proposal

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## IMPORTANT INFORMATION AND REVISION NOTES

### Important Information

- The NSF ADVANCE program is moving toward a focus on the diffusion and scale-up of evidence-based systemic change

- strategies that address inequity for STEM faculty in academic workplaces and the academic profession.
- NSF ADVANCE **Partnership** and **Adaptation** projects can focus on one (or more) STEM disciplines if designed to have national or regional impact. Note that **Adaptation** projects from non-profit institutions of higher education must include all the STEM disciplines at the institution.
  - There is a target date for **Catalyst** proposals. ADVANCE will accept **Catalyst** proposals before and after the target date. Please contact the program office before submitting a **Catalyst** proposal to determine if funding is available.

#### Revision Notes

- The new target dates for NSF ADVANCE **Institutional Transformation (IT)** and **IT-Preliminary** proposals allow more flexibility for institutions considering an **IT** project (see PAPPG Part I, Chapter 1, section F. When to submit proposals). ADVANCE will accept **IT-Preliminary** proposals and invited **IT** proposals before and after the target dates. Note that fewer **IT** awards will be offered in this solicitation and only institutions invited by NSF to submit a full **IT** proposal after the review of the **IT-Preliminary** proposal can submit full **IT** proposals.
- NSF ADVANCE proposers are encouraged to link to other NSF STEM diversity programs through increased funding for **Adaptation** and **Partnerships** awards that propose collaborations with the NSF INCLUDES National Network, or with an NSF-funded graduate education program.
- The **Catalyst** track is a new opportunity to support organizational self-assessment, pilot equity strategies, and develop an equity strategic plan for STEM faculty. Only non-profit institutions of higher education that are not, and have not been, the lead on any type of NSF ADVANCE grant are eligible.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 19-1), which is effective for proposals submitted, or due, on or after January 28, 2019.

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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#### Program Title:

ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE)

#### Synopsis of Program:

The NSF ADVANCE program contributes to the National Science Foundation's goal of a more diverse and capable science and engineering workforce.<sup>1</sup> In this solicitation, the NSF ADVANCE program seeks to build on prior NSF ADVANCE work and other research and literature concerning gender, racial, and ethnic equity. The NSF ADVANCE program goal is to broaden the implementation of evidence-based systemic change strategies that promote equity for STEM<sup>2</sup> faculty in academic workplaces and the academic profession. The NSF ADVANCE program provides grants to enhance the systemic factors that support equity and inclusion and to mitigate the systemic factors that create inequities in the academic profession and workplaces. Systemic (or organizational) inequities may exist in areas such as policy and practice as well as in organizational culture and 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. Similarly, policies and procedures that do not mitigate implicit bias in hiring, tenure, and promotion decisions could lead to women and racial and ethnic minorities being evaluated less favorably, perpetuating historical under-participation in STEM academic careers and contributing to an academic climate that is not inclusive.

All NSF ADVANCE proposals are expected to use intersectional approaches in the design of systemic change strategies for STEM faculty in recognition that gender, race and ethnicity do not exist in isolation from each other and from other categories of social identity. The solicitation includes four funding tracks **Institutional Transformation (IT)**, **Adaptation**, **Partnership**, and **Catalyst**, in support of the NSF ADVANCE program goal to broaden the implementation of systemic strategies that promote equity for STEM faculty.

**Please note that NSF ADVANCE does not provide fellowships, research, or travel grants to individual students, postdoctoral researchers, or faculty to pursue STEM degrees or research.** 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).

<sup>1</sup> *Building the Future Investing in Innovation and Discovery: NSF Strategic Plan 2018-2022.*  
[https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf18045](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf18045).

<sup>2</sup> All the STEM fields supported by NSF are supported by the ADVANCE program including the learning, social, behavioral, and economic sciences. ADVANCE does not support the clinical science fields.

#### 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.

- Minerva Cordero, Program Director, telephone: (703) 292-7377, email: [mcordero@nsf.gov](mailto:mcordero@nsf.gov)

- 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 38

The total number of awards to be made under this solicitation is estimated to be between 18 and 38 over the two fiscal years of this solicitation. Approximately two **Institutional Transformation** awards up to \$3,000,000 for five-year projects are expected to be made under this solicitation. In each year, NSF expects to make: approximately six **Adaptation** awards up to \$1,000,000 for three years; approximately six **Partnership** awards up to \$1,000,000 for three to five years; and approximately six Catalyst awards up to \$300K for two years. NSF anticipates that up to three of the six **Adaptation** projects may qualify for an additional \$100,000 for collaborating with an NSF funded graduate education project and up to three of the six **Partnerships** projects may qualify for an additional \$250,000 for collaborating with the NSF INCLUDES National Network.

**Anticipated Funding Amount:** \$30,000,000

Pending availability of funds, NSF anticipates having up to \$30,000,000 available over a period of two fiscal years (FY 2019-FY 2020) for support of the NSF ADVANCE portfolio. Up to \$15,000,000 will be available for the FY 2019 competition and approximately \$15,000,000 will be available for proposals for the FY 2020 competition.

**Eligibility Information**

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**Who May Submit Proposals:**

Proposals may only be submitted by the following:

- **Institutions of Higher Education (IHEs):** Non-profit two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the U.S., acting on behalf of their faculty members. Special Instructions for International Branch Campuses of U.S. IHEs: If the proposal includes funding to be provided to an international branch campus of a U.S. institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus and justify why the project activities cannot be performed at the U.S. campus.
- **Non-profit, Non-academic Organizations:** Independent museums, observatories, research laboratories, professional societies and similar organizations located in the U.S. that are directly associated with educational or research activities.

**Who May Serve as PI:**

There are no restrictions or limits.

**Limit on Number of Proposals per Organization:**

- Eligible IHEs can submit one proposal to **IT-Preliminary**, **Adaptation**, OR **Catalyst**. IHEs can also be a partner on one or more **Partnership** proposals.
- Eligible Non-profit, non-academic organizations can submit one proposal to the **Adaptation** competition and be a partner on one or more **Partnership** proposals.
- IHEs and non-profit, non-academic organizations may be partners on multiple ADVANCE **Partnership** proposals in the same competition but can be the lead organization only on one **Partnership** proposal in the same competition.

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

There are no restrictions or limits.

**Proposal Preparation and Submission Instructions**

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**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):

May 15, 2019

Letter of Intent due for May 2019 Adaptation and Partnership competition

November 01, 2019

Letter of Intent for January 2020 Adaptation and Partnership competition

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January 15, 2020

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Catalyst proposals

March 02, 2020

Institutional Transformation proposals - only IHEs invited as a result of an IT-Preliminary proposal may submit a full IT proposal

## **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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In this solicitation, the NSF ADVANCE program seeks to build on prior NSF ADVANCE work and other research and literature concerning gender, racial, and ethnic equity to meet the program goal of broadening the implementation of evidence-based systemic change strategies that promote equity for STEM faculty in academic workplaces and the academic profession. The NSF ADVANCE program provides grants to enhance the systemic factors that support equity and inclusion and to mitigate the systemic factors that create inequities in the academic profession and workplaces. Systemic (or organizational) inequity may exist in areas such as policy and practice as well as in organizational culture and climate. The focus on equity for STEM academic faculty is strategic, since faculty educate, train, and mentor undergraduate and graduate students and postdoctoral scholars and therefore have significant influence over the preparation, interest, persistence, completion, and career choice of future scientists and engineers.

All NSF ADVANCE proposals are expected to use intersectional approaches in the design of systemic change strategies for STEM faculty in recognition that gender, race and ethnicity do not exist in isolation from each other and from other categories of social identity.

NSF ADVANCE is interested in supporting a range of institutions of higher education (IHE) because the variation of STEM faculty equity issues within different contexts needs to be better understood. NSF ADVANCE is particularly interested in learning more about the adaptation of ADVANCE strategies for 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 level institutions.

## II. PROGRAM DESCRIPTION

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All NSF ADVANCE proposals are expected to take an intersectional approach regarding the salient categories of social identity for the project. Specifically, proposers should recognize that gender, race and ethnicity do not exist in isolation from each other and other categories of social identity, such as disability status, sexual orientation, foreign-born and foreign-trained status, faculty appointment type, etc. Intersectional approaches should be considered **throughout the project design** – from the data collection and analysis of institutional or disciplinary data to identify systemic inequities, to the design of the project strategies, and to the project evaluation. ADVANCE proposals should offer strategies that involve all faculty and promote equity for all faculty.

The **Institutional Transformation (IT)** track is designed to support the development, implementation, and evaluation of *innovative*

systemic change strategies that promote gender equity for STEM faculty in academic workplaces within an institution of higher education.

The **Adaptation** track is designed to support the work to adapt, implement, and evaluate evidence-based systemic change strategies that have been shown to promote gender equity for STEM faculty in academic workplaces and the academic profession. **Adaptation** projects can either: 1) support the adaptation of evidence-based systemic change strategies to promote equity for STEM faculty within an institution of higher education; or 2) facilitate national or regional STEM disciplinary transformation by adapting evidence-based systemic change strategies to non-profit, non-academic organizations.

The **Partnership** track is designed to support the work to facilitate the broader adaptation of gender equity and systemic change strategies. **Partnership** projects are expected to result in national or regional transformation in STEM academic workplaces and the academic profession and demonstrate significant reach. **Partnership** projects can focus on the transformation of institutions and organizations and/or the transformation within one or more STEM disciplines.

The **Catalyst** track is designed to broaden the types of IHEs that are able to undertake data collection and institutional self-assessment work to identify systemic gender inequities impacting their STEM faculty so that these can be addressed by the institution.

All ADVANCE proposals should report impacts on gender equity related to one or more of the following objectives:

- The incorporation of intersectional approaches in ADVANCE equity strategies for STEM faculty in recognition that gender, race, and ethnicity do not exist in isolation from each other and from other categories of social identity;
- The adaptation and implementation by IHEs and non-academic organizations of evidence-based systemic change strategies that have been shown to enhance equity for STEM faculty in academic workplaces and the academic profession; and
- The empowerment of individual and organizational stakeholders to enhance equity for STEM faculty in academic workplaces and the academic profession. Stakeholders include but are not limited to STEM faculty, organizations that have STEM faculty members, academic and organization leadership, organizations that have academic leadership members, facilitators and trainers, boards of directors, STEM professional societies, and higher education and organizational staff.

1. The **Institutional Transformation (IT)** track supports the development, implementation and evaluation of *innovative* systemic change strategies within a single non-profit IHE with the intention that these innovative strategies could be adaptable by other IHEs and organizations. The **IT** project must include a rigorous research study related to the ADVANCE project that contributes to knowledge about gender equity and systemic change 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 are more appropriate for the **Adaptation** track. Only IHEs that are invited to submit a full proposal after review of an **IT-Preliminary** proposal can submit a full **IT** proposal.
2. The **Adaptation** track supports the adaptation and implementation of evidence-based organizational change strategies by a single non-profit:
  - **Institution of Higher Education (IHE)** to address systemic inequities for STEM faculty that includes all the STEM disciplines within the IHE. Prior ADVANCE **IT-Catalyst** grantees are encouraged to apply for an **Adaptation** project; OR
  - **Non-academic organization** to address systemic inequities in STEM academic workplaces for STEM faculty within one or more STEM disciplines. **Adaptation** projects by non-academic organizations must be designed with national or regional impact and significant reach. Significant reach will be different depending on the systemic inequity issue(s) that are addressed, the population(s) targeted, and the proposed intervention(s). Information on the numbers and the percent of individuals or organizations reached, and the degree of change that is expected from those who participate, should be articulated in the proposal to explain the significance of the reach. For example, an **Adaptation** project by a STEM professional society to revamp the format of all their regional and national conferences in order to infuse equity and inclusion into the agenda and the pre-conference workshops could have national impact and significant reach within that discipline if a significant percentage of faculty in that discipline are members and attend the conferences and workshops.

**Collaboration Opportunity:** **Adaptation** projects may propose to collaborate with one or more NSF-funded STEM graduate education program(s). Projects that propose a collaboration with an NSF STEM graduate education project may request up to an additional \$100,000 over the life of the project. The additional funds are intended to support the alignment of **systemic changes** between the graduate education project and the ADVANCE project (not direct support to students or faculty). The additional funds could cover the costs of maintaining the partnership such as travel and staff time and for implementing collaborative activities. For example, the collaboration could be designed to infuse intersectional and equity approaches into the graduate education project to enhance the impact of the project and/or to promote the translation of the ADVANCE project's systemic change strategies for faculty to the graduate level, such as adapting work-life balance policies or addressing potential implicit bias in decision making committees. NSF STEM graduate education programs may include the Alliances for Graduate Education and the Professoriate (AGEP), Innovations in Graduate Education (IGE), CyberCorps (R): Scholarship for Service (SFS), National Science Foundation Research Traineeship (NRT), or a graduate education focused component of the NSF INCLUDES National Network.

3. The **Partnership** track supports projects designed to result in the regional or national diffusion and/or scale-up of evidence-based systemic change strategies. **Partnership** projects are expected to involve two or more partners. **Partnership** projects must be designed to have a significant reach to individuals and/or organizations with evidence-based systemic change strategies to enhance equity for STEM faculty in academic workplaces and the academic profession. Individuals and organizations may include, but are not limited to, academic administrators, academic staff in relevant positions (such as human resource officers, institutional research directors, equal opportunity officers, and Title VII and Title IX officers), STEM faculty and leaders, editors and publishers, STEM professional societies, non-profit institutions of higher education, and STEM research funders.

The proposer(s) must explain the significance of the reach in the proposal. Describe the intended reach of the project in numbers and percentages as well as the impact of the project in terms of the expected systemic, cultural and/or climatic change. This will be different depending on the systemic inequity issues that are being addressed, the population(s) of interest, and the proposed strategies.

**Collaboration Opportunity: Partnership** projects may propose to collaborate with any part of the NSF INCLUDES National Network. Projects that propose a collaboration with the NSF INCLUDES National Network may request up to an additional \$250,000 over the life of the **Partnership** project. The collaboration should be mutually beneficial, such as an avenue to increase the reach of the ADVANCE project and enhance the NSF INCLUDES efforts. The additional funds could be allocated to the costs of maintaining the partnership with the NSF INCLUDES entity such as travel and staff time and for implementing the collaboration activities. For example, if the **Partnership** project proposes to scale up the adaptation of proven strategies to mitigate harassment in STEM academic workplaces, then a partnership with the NSF INCLUDES National Network via the Coordination Hub or an Alliance might be an avenue for increasing the reach and/or rate of the adaptation through access to larger numbers of stakeholders.

- The **Catalyst** track supports the design and implementation of an organizational self-assessment to collect and analyze data to identify STEM faculty inequities, pilot equity strategies as appropriate, and develop a five-year equity strategic plan for STEM faculty. Only non-profit IHEs that are not, and have not been, the lead on any type of **ADVANCE** grant are eligible.

Table comparing the ADVANCE tracks:

NSF ADVANCE Track	Institutions of Higher Education (IHE)	Non-Academic Organizations	Prior NSF ADVANCE status	Multiple Organizations	Budget	Preliminary Proposal or Letter of Intent (LOI)
<b>Institutional Transformation (IT)</b>	Yes (must include all STEM disciplines at the institution)	No	IHEs cannot have had an <b>ADVANCE IT</b> or <b>Adaptation</b> award	Not allowed (systems & multi-campus IHEs are permitted)	Up to \$3M for five years	IT-Preliminary Proposal Required <b>and</b> an invitation from NSF to submit IT proposal
<b>Adaptation</b>	Yes (must include all STEM disciplines at the institution)	Yes (one or more STEM discipline, National/regional reach)	IHEs cannot have had an <b>ADVANCE IT</b> or <b>Adaptation</b> award	Not allowed (systems & multi-campus IHEs are permitted)	Up to \$1M for 3 years + up to \$100K additional for partnering w/ NSF STEM graduate ed. project	LOI Required
<b>Partnership</b>	Yes (one or more STEM discipline, National/regional reach)	Yes (one or more STEM discipline, National/regional reach)	May have, or have had, an ADVANCE grant but it is <b>not required</b>	<b>Required</b> -two or more in the partnership	Up to \$1M for 3 to 5 years + up to \$250K additional for partnering with NSF INCLUDES National Network	LOI Required
<b>Catalyst</b>	Yes (must include all STEM disciplines at the institution)	No	IHEs cannot have been the lead on any ADVANCE award	Not allowed (systems & multi-campus IHEs are permitted)	Up to \$300K for 2 years	None

**Other opportunities:** NSF 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 Proposal and Award Policies and Procedures Guide (PAPPG) which is available at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg). PIs are advised to discuss any proposal ideas with an ADVANCE program officer **before** submitting.

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

### III. AWARD INFORMATION

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

**Estimated Number of Awards:** 18 to 38

The total number of awards to be made under this solicitation is estimated to be between 18 and 38 over the two fiscal years of this solicitation. Approximately two **Institutional Transformation** awards up to \$3,000,000 for five-year projects are expected to be made under this solicitation. In each year, NSF expects to make: approximately six **Adaptation** awards up to \$1,000,000 for three years; approximately six **Partnership** awards up to \$1,000,000 for three to five years; and approximately six Catalyst awards up to \$300K for two years. NSF anticipates that up to three of the six **Adaptation** projects may qualify for an additional \$100,000 for collaborating with an NSF funded graduate education project and up to three of the six **Partnerships** projects may qualify for an additional \$250,000 for collaborating with the NSF INCLUDES National Network.

**Anticipated Funding Amount:** \$30,000,000

Pending availability of funds, NSF anticipates having up to \$30,000,000 available over a period of two fiscal years (FY 2019-FY 2020) for support of the NSF ADVANCE portfolio. Up to \$15,000,000 will be available for the FY 2019 competition and approximately \$15,000,000 will be available for proposals for the FY 2020 competition.

## IV. ELIGIBILITY INFORMATION

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### Who May Submit Proposals:

Proposals may only be submitted by the following:

- **Institutions of Higher Education (IHEs):** Non-profit two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the U.S., acting on behalf of their faculty members. Special Instructions for International Branch Campuses of U.S. IHEs: If the proposal includes funding to be provided to an international branch campus of a U.S. institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus and justify why the project activities cannot be performed at the U.S. campus.
- **Non-profit, Non-academic Organizations:** Independent museums, observatories, research laboratories, professional societies and similar organizations located in the U.S. that are directly associated with educational or research activities.

### Who May Serve as PI:

There are no restrictions or limits.

### Limit on Number of Proposals per Organization:

- Eligible IHEs can submit one proposal to **IT-Preliminary**, **Adaptation**, OR **Catalyst**. IHEs can also be a partner on one or more **Partnership** proposals.
- Eligible Non-profit, non-academic organizations can submit one proposal to the **Adaptation** competition and be a partner on one or more **Partnership** proposals.
- IHEs and non-profit, non-academic organizations may be partners on multiple **ADVANCE Partnership** proposals in the same competition but can be the lead organization only on one **Partnership** proposal in the same competition.

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

There are no restrictions or limits.

### Additional Eligibility Info:

- **IT-Preliminary** proposals are accepted from a non-profit institution of higher education (IHE) eligible for NSF funding that has not had an **ADVANCE IT** award.
- **Adaptation** proposals are accepted from a non-profit institution of higher education (IHE) or a non-profit, non-academic organization eligible for NSF funding. IHEs cannot have had an **ADVANCE IT** or **Adaptation** award.
- **Catalyst** proposals are accepted from one non-profit IHE that is not, and has not been, the lead grantee on any type of previous NSF **ADVANCE** award.
- **Partnership** proposals are accepted from partnerships of two or more non-profit IHEs and/or non-profit, non-academic organizations. Partners may include past or current NSF **ADVANCE** grant recipients, new IHEs and organizations to **ADVANCE**, and unfunded strategic partners (such as the private commercial sector).

## 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 only required for the **ADVANCE Adaptation and Partnership** tracks:

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 track for which the proposers are applying. If an organization submits a letter of intent by the deadline then the organization is automatically eligible to submit the full proposal; there is no formal invitation or other notice after the letter of intent has been submitted.

- Only one letter of intent can be submitted by an IHE or organization for the **Adaptation** track.
- IHEs and organizations may be part of more than one **Partnership** letter of intent but may be the lead on only one **Partnership** proposal. A separate letter of intent for each planned **Partnership** proposal is required.
- All letters of intent must be submitted through FastLane (not by email).

Letters of Intent must include:

Project Synopsis (2500-character maximum): Provide a description of the proposed project.



Other Comments Input Text Area: List key project personnel with a brief description of their proposed roles. For the **Partnership** track; list partner organizations with a brief description of the organization's role in the project.

**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.

**Preliminary Proposals are ONLY required for IHEs that want an opportunity to submit a full *Institutional Transformation (IT)* proposal:**

An institution of higher education (IHE) that has not previously had an ADVANCE ***Institutional Transformation (IT)*** or ***Adaptation*** award can submit an ***IT-Preliminary*** proposal. NSF will send notices of decision to invite or not invite the IHE to submit a full proposal after review of the preliminary proposal. Full ***IT*** proposals will only be accepted from those IHEs that are invited to submit a full ***IT*** proposal. If an IHE is not invited, they have to wait until the following year to resubmit a preliminary proposal but are welcome to submit a proposal to any other ADVANCE track for which they are eligible.

**The following information must be included in the eight-page preliminary proposal:**

Preliminary proposals must highlight the innovative gender equity systemic change strategies to be developed, implemented, and evaluated (projects that do not propose innovative strategies are more appropriate for the ***Adaptation*** track).

1. A description of the IHE's systemic gender equity issues supported by qualitative and quantitative data and analysis;
2. A discussion of the underlying systemic causes of any gender inequities drawing on the literature and past ADVANCE work with an outline of the organizational change strategies to be implemented to address the systemic causes – highlight and explain what is innovative about the strategies and make it clear why the higher level and longer investment that comes with an ***IT*** project is necessary; and
3. A brief description of the proposed research on gender equity in STEM academics, including the links between the research and the proposed activities.

ADVANCE projects are expected to take into account 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. It is estimated 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 proposal development between the preliminary proposal and the full proposal if invited. Other supplementary documents will not be accepted

Preliminary proposals will be peer reviewed using the NSF merit review criteria and the additional review criterion in this solicitation with ad hoc and/or panel reviews. NSF will make decisions to invite or not invite a full proposal submission to the ***Institutional Transformation (IT)*** track and will notify proposers. The only way to submit a full ADVANCE ***IT*** proposal is to be invited by NSF after the submission and review of an ***IT-Preliminary*** proposal.

**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=papppg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=papppg). 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.

For all ADVANCE proposal types:

- All proposals to ADVANCE are expected to consider the salient categories of social identity as they collect and analyze data and design the project implementation and evaluation (see additional review criteria on intersectional approaches).
- ADVANCE teams need to include a range of expertise to be successful including STEM faculty and administrators as well as equity and systemic change experts who may be social or behavioral scientists.
- The burden of ADVANCE proposal development and implementation should not fall solely onto the populations that are intended to be served by this program. In order to address systemic issues all STEM faculty, administrators, and stakeholders likely need to be involved in the design and implementation and be potential participants in the project activities.
- All ADVANCE proposals should explain how the project will meet one or more of the objectives described in the Program Description section and how progress towards the objective(s) will be measured and reported to NSF.
- ADVANCE proposals cannot include programming for or financial support to undergraduate or graduate students or postdoctoral scholars unless they are *doing work on the ADVANCE project implementation or evaluation*.

**Each proposal should include the following sections in the Project Description in addition to the required sections on intellectual merit and broader impacts:**

### **Organizational and/or Disciplinary Context, Data, and Problem Analysis**

Background and contextual information on the focus of the project is necessary to support the need for the project and to describe the potential impact of the project. All data and contextual information must be included in the project description section and cannot be included as supplementary documents. The data should provide the reviewers with a clear understanding of the status of STEM faculty relevant to the project and the equity problem(s) to be addressed with the proposed project.

Proposals should demonstrate that the available data and literature have been analyzed to understand the underlying reasons for the equity problems identified from the data. There may be multiple systemic causes in policies, practices, climate, and culture, and the causes and solutions may be different for different groups of faculty. For example, if the data indicate a longer time in rank at associate professor for women and faculty of color, then additional investigation may be necessary to determine the **systemic causes** for this difference, and to determine the appropriate intervention(s). While a mentoring program may be helpful to mitigate the symptom (longer time in rank) it may not address the underlying systemic reason(s) which could be that the criteria for promotion are unclear, unwritten, or inconsistently used. Another example may be data showing a higher than expected turnover in non-tenure track STEM faculty. While retention packages may result in less turnover (the symptom), it may not address the underlying reason for job dissatisfaction which could be committee membership policies that keep non-tenure track faculty from serving on important curriculum and teaching committees for example. Fixing this issue could be a low-cost **systemic** solution to the problem that will have long-term impact and is straightforward to sustain and institutionalize. For **Catalyst** projects, it is understood that this data collection and analysis will be done during the Catalyst project; however basic information on STEM faculty numbers and demographics should be provided in the proposal as part of the organizational context for the project.

Proposers from IHEs can review the "[ADVANCE Indicators Toolkit](#)" for guidance on the types of data they may want to include. Note that the toolkit data are not required, and some data elements may not be relevant to all institution types and situations; the data used in the proposal should be tailored to the organization(s) and project activities that are proposed.

This section should also include a description of related current and past activities and initiatives and how these activities will be coordinated with or incorporated into the proposed project initiatives. **Funding cannot be requested to replace existing funding for ongoing activities.**

### **Activities Description**

**Institutional Transformation, Adaptation, and Partnership:** The proposed project activities must be fully described in the proposal including evidence of their effectiveness in promoting systemic equity in academic workplaces and/or in the academic profession. Evidence of effectiveness may come from the social or behavioral science research literature on diversity in the STEM workforce, equity in workplaces, organizational change, and organizational culture and climate. Evidence of effectiveness may also be from the implementation of the strategies by others and their conclusions of effectiveness which may be in published papers, unpublished evaluative reports, and/or shared through discussions about the impact of the strategy with those who implemented it. Note that activities are expected to build on prior ADVANCE work and/or other sources to minimize costly duplication. Each activity should be linked to resolving the equity problem(s) identified in the problem analysis. The project goals and objectives for the activities should be clearly described in the proposal. Metrics for measuring the progress and outcomes of each activity should be included and linked to the project impact evaluation (see evaluation section below). Proposals should explain any adaptations to earlier strategies and research that will be made in the project. The proposed activities should create positive, sustainable, and permanent change.

**Institutional Transformation** proposals must highlight the innovative systemic change activities that will be developed, implemented, and evaluated as part of the proposal. **IT** proposals must include all STEM disciplines at the institution.

**Adaptation** proposals from institutions of higher education must include all STEM disciplines at the institution. **Adaptation** projects by non-academic organizations may focus on one, or more, STEM discipline areas and are expected to have national or regional impact within the STEM discipline(s). Projects that include collaborations with NSF graduate education programs should include information on the activities associated with the collaboration.

All **Partnership** projects are expected to result in national or regional reach to individuals and/or organizations with evidence-based systemic change strategies to enhance equity for STEM faculty. **Partnership** projects may focus on all STEM disciplines, several STEM disciplines, or only one STEM discipline. A range of implementation models can be proposed such as, but not limited to, train the trainers, collective impact projects, extension centers, and network improvement communities. Projects that include collaborations with NSF INCLUDES should include information on the activities associated with the collaboration. The **Partnership** proposal must explain the significance of the reach to individuals and/or organizations in the proposal including the impact of the collaboration with NSF INCLUDES if proposed.

**Catalyst:** Appropriate activities include; assessment of institutional climate and culture, collection and analysis of faculty data; review of faculty related policies and practices to identify potential inequities; research on the potential strategies to address inequities that are identified; and the potential piloting of systemic change strategies. All **Catalyst** projects must develop a five-year STEM faculty equity strategic plan that is linked to the institution's strategic plan. If appropriate, the five-year STEM faculty equity plan can include components relevant to all faculty at the institution in addition to STEM faculty. **Catalyst** teams can perform site visits to other institutions to assess activities for potential adaptation. The project description should include details on the proposed **Catalyst** activities to be implemented.

### Communication Strategy

Communicating the results of NSF ADVANCE projects is critical for sustainability and institutionalization as well as for increasing the adaptation of ADVANCE strategies. Proposals must include plans for sharing information on what worked and what did not work within the organization(s) involved in the project as well as with appropriate external audiences and stakeholders. The basic communication requirements for each proposal includes an ADVANCE project website and a commitment to sharing lessons learned, products, and materials with the ADVANCE Resource Coordination Network ([ARC Network](#)). Other appropriate channels for sharing results from the project may include peer-reviewed journals, topical or STEM professional web sites, and professional association conferences. These channels should be informed by the proposed activities, for example, if the project will focus on adapting systemic change practices to community college state system then it would be strategic to share the results of the project with professional organizations that have community college leadership as members and/or publish in journals targeting community college administrators. For **IT** projects, communication about the innovative strategies and the research component should also be included. For **Catalyst** projects, the communication strategy may focus more on internal communication with key administrators, staff, and STEM faculty to increase support for the five-year STEM faculty equity plan.

### Project Evaluation

**Institutional Transformation, Adaptation, and Partnership:** It is required that each proposal include a formative and summative evaluation plan. The plan should be developed by an evaluator with appropriate expertise. Internal evaluators would be appropriate for formative evaluation and external evaluators for summative evaluation. The evaluation plan should refer to the project objectives, goals, and contextual 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 equity for STEM faculty, whether the project achieved the overall project goals, identify any unexpected results, and describe the contribution of the project to the objectives described in the Program Description section. **The collection and reporting of project-related data and participants' 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).

**Catalyst:** An objective internal evaluation that focuses on the implementation and impact of the **Catalyst** activities is required. This evaluation can be conducted by an institutional office or qualified individual on or off campus. An external evaluation is not required but is allowed if desired

### Commitment and Sustainability

Organizational commitment from administrators and leaders to the proposed project activities is vital for successful projects and for sustainability of promising activities. Letters of collaboration from key administrators and organizational leaders of each partner are required and should be submitted as supplementary documents. Letters of collaboration from other decision-making bodies such as advisory boards may also be appropriate to include. For **Catalyst** projects, administrative commitment to the five-year STEM faculty equity strategic plan should be clear in the project description and in letters of collaboration.

Sustainability should be considered at every stage of project implementation and should have dedicated staff time throughout the project. Note that organizational commitment can also be demonstrated through commitment to project sustainability. For guidance on voluntary uncommitted cost sharing please review the NSF Proposal and Award Policies and Procedures Guide (PAPPG), Chapter II.C.2.g(xii).

### Project Management

Proposals must include a management plan and timeline. The management plan should describe who will perform outlined tasks during the project and define the role of each partner organization if applicable. Typically, 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 that is necessary based on the proposed project activities and evaluation. Projects that include collaborations with NSF INCLUDES or NSF graduate education programs should include information on the management of the collaboration.

The timeline should include the major activities (including project evaluation), projected benchmarks, and identify the individual(s) who will be responsible for completing each activity.

**Institutional Transformation proposals** are expected to include plans for an *Internal Steering Committee* and an *External Advisory Committee*. **Adaptation** and **Partnership** proposers are encouraged to consider incorporating an *Internal Steering Committee* and/or an *External Advisory Committee*. Such committees can be valuable for the success and sustainability of the project if well designed; advisory committees should not be used to replace project evaluation:

- Internal Steering Committees can help oversee the project implementation, resolve organizational issues, and ensure that the project is on track for meeting its goals. Ideally, the members of the internal committee are not also involved in the management of the ADVANCE project. The composition will depend on the design of the project. Members might include key stakeholders for sustainability of the project, those who will need to cooperate with the project 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.
- External Advisory Committees provide external perspectives on the equity issues and strategies. They may also provide expertise not available within the institution and an objective external option for communicating with organizational

stakeholders about equity issues and the project. Members might include social science experts in areas relevant to the project activities, experts from the target of the project (for example past department chairs on a project targeting chair training), experienced ADVANCE implementers and evaluators, and/or leaders from other organizations and institutions of higher education.

### Supplementary Documents

Only the following documents may be submitted as Supplementary Documents: data management plan (NSF required); postdoctoral researcher mentoring plan if budget includes support for postdoctoral researchers (NSF required); letters of collaboration from key organizational leadership and partner organizations (program required); one-page project organizational chart that illustrates how the project fits into the existing organization(s) (program required); and, external evaluator biographical sketch(es) (recommended). **Institutional Transformation** proposals must also include a five-page supplementary document devoted to the description of the systemic change and gender equity research study (program required). 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 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.

## 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):

May 15, 2019

Letter of Intent due for May 2019 Adaptation and Partnership competition

November 01, 2019

Letter of Intent for January 2020 Adaptation and Partnership competition

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

October 01, 2019

Target Date for IT-Preliminary proposals - preliminary proposals are only required for IHEs that want a chance to submit a full Institutional Transformation proposal

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

May 22, 2019

Adaptation and Partnership (FY 2019 competition)

January 15, 2020

Adaptation and Partnership (FY 2020 competition)

### Full Proposal Target Date(s):

June 03, 2019

Catalyst proposals

March 02, 2020

Institutional Transformation proposals - only IHEs invited as a result of an IT-Preliminary proposal may submit a full IT proposal

## 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 *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. 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 an additional review criterion for all ADVANCE proposals:

Because the influences of gender, race, and ethnicity do not exist in isolation from each other and other categories of social identity, all ADVANCE proposals are expected to take an intersectional approach in the proposal design, research, evaluation, and data collection. Reviewers will be asked to comment on how well the proposal addresses the intersection of gender, race, and ethnicity with other characteristics such as: 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

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.)

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### B. Award Conditions

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: one held towards 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) and may be held in person or virtually. 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.

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### C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer 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=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

**Institutional Transformation (IT)** 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.

**Adaptation, Catalyst, and Partnership** awardees will have the standard NSF reporting requirements unless additional reporting is considered necessary by the National Science Foundation.

All NSF ADVANCE reports are expected to include all available project evaluation reports from internal and external project evaluators, relevant project data and impact data, survey instruments, and other tools and materials developed by the project. NSF ADVANCE grantees are asked to participate and contribute ADVANCE project related documents and materials whenever possible to the ADVANCE Resource Coordination Network ([ARC Network](#)).

OMB review and clearance of a data monitoring system for NSF ADVANCE grantees is underway which is expected to become part of the annual and final reporting requirements. Notices will be published in the Federal Register for public comment. Data collected will likely be in four categories: 1) Revised or new policies, processes, and practices; 2) Changes in STEM culture and climate; 3) New knowledge of systemic change and equity; and 4) Sustainability and diffusion of ADVANCE strategies. Examples of metrics within these categories might include but are not limited to: the number of new and revised policies, training related to and usage of new or revised policies, changes in faculty job satisfaction and intention to stay in job, changes to organizational structure and accountability systems, number and percent directly and indirectly impacted as a result of the ADVANCE activities, implementation of new data collection and expectations to use data in decision-making, and number of tools developed and used.

## 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:

- Minerva Cordero, Program Director, telephone: (703) 292-7377, email: [mcordero@nsf.gov](mailto:mcordero@nsf.gov)
- 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>.

## 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
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
  - Send an e-mail to: [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov)
  - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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

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

Suzanne H. Plimpton  
Reports Clearance Officer  
Office of the General Counsel  
National Science Foundation  
Alexandria, VA 22314



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Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (703) 292-5090 or (800) 281-8749

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