



ADVANCE

INCREASING THE PARTICIPATION & ADVANCEMENT
OF WOMEN IN ACADEMIC SCIENCE, TECHNOLOGY,
ENGINEERING AND MATHEMATIC CAREERS.



OVERVIEW

In 47 states, the District of Columbia and Puerto Rico, more than **160 different institutions** of higher education and non-profit organizations have **received ADVANCE grants** totaling over **\$270M between 2001 and 2016**.

NSF ADVANCE funding opportunities (NSF 16-594):



INSTITUTIONAL TRANSFORMATION (IT) supports development of innovative organizational change strategies to enhance gender equity in STEM academics in non-profit institutions of higher education. Projects must include comprehensive evaluation and rigorous social science research. All non-profit institutions of higher education that have not had a previous IT award are eligible to apply.



ADAPTATION supports adaptation and implementation of proven organizational and systemic change strategies for specific issues of gender inequity supported by an analysis of relevant data. These awards may be made to a single non-profit academic institution or organization that has not had an **ADVANCE** IT award.



PARTNERSHIP supports 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. Projects can focus on one or multiple STEM disciplines and should have national or regional impact. Partners should be strategically selected to meet project goals.



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CHALLENGES & GOALS

The number of women obtaining science, technology, engineering, and mathematics (STEM) doctorate degrees has increased steadily in recent decades. However, women continue to be underrepresented in STEM academic positions, especially at senior ranks and in leadership positions.

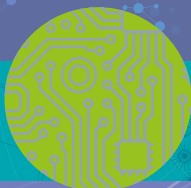
Research* indicates that the marginal participation and advancement of women in STEM is often a function of external systemic factors unrelated to their ability, interest and technical skills, such as:

- Implicit and explicit bias;
- Organizational constraints of academic institutions;
- Differential effects of work and family demands;
- Underrepresentation of women, especially women of color, in academic leadership and decision-making positions; and
- Culture and climate of academic organizations.

The goals of the National Science Foundation's **ADVANCE** program are:

- To develop systemic approaches to increase the participation and advancement of women in academic STEM careers
- To develop innovative and sustainable ways to promote gender equity that involve both men and women in the STEM academic workforce
- To contribute to the research knowledge base on gender equity and the intersection of gender and other social identities in STEM academic careers

**See, for example, Solving the Equation: The Variables for Women's Success in Engineering and Computing. American Association of University Women, 2015*





ADVANCE

STRATEGIES DEVELOPED BY INSTITUTIONAL
TRANSFORMATION GRANTEES





Written and unwritten policies, procedures, and practices can unintentionally create inequities.

ADVANCE institutions have benefited from:

- Reviewing, revising, and increasing the transparency and effective implementation of recruitment, promotion, and tenure policies.
- Developing faculty and workplace climate data collection and reporting processes, with data disaggregated by at least demographics and rank, for use in decision-making.
- Incorporating responsibilities for implementing and upholding best practices for achieving and sustaining equity and diversity into administrative and leadership positions, while also promoting best practices among all faculty.



Successful recruitment, retention and promotion of both female and male faculty is related to job satisfaction which is highly influenced by work-life balance.

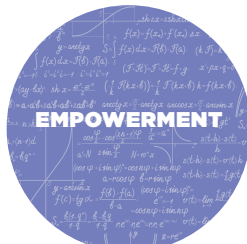
ADVANCE institutions have benefited from:

- Developing and implementing flexible career policies that address life transitions and other needs identified by faculty climate surveys and other data.
- Developing career support programs to mitigate issues for faculty, such as isolation and solo status.
- Establishing dual-career hiring policies tailored to the institution and region.
- Creating structures to train administrators and faculty and to ensure that there are no negative impacts on a faculty's career for participating in the programs.



Career support programs are important for recruitment, retention, and promotion of all faculty particularly women and men of color. **ADVANCE** institutions have benefited from:

- Establishing formal mentoring structures and providing recognition of service for the time and effort of mentors.
- Developing unbiased mechanisms to make service, teaching, and resource assignments.
- Developing broader mechanisms to recognize the wide range of professional excellence of faculty.
- Providing workshops, training, timely feedback on progress, and coaching on the tenure and promotion processes to all faculty.
- Implementing leadership development, career coaching, and network building programs.



Faculty, department leaders, and institutional administrators are empowered when given the tools and resources to address inequity. **ADVANCE** institutions have benefited from:

- Providing training on effective strategies to reduce the stressors that result in a greater reliance on implicit biases when making decisions, especially in search, promotion, and tenure committees.
- Creating research-driven tools such as templates, and checklists tailored to institutional decision making processes to mitigate institutionalized gender equity barriers.

Many **ADVANCE** developed steps toward institutional transformation can be incorporated into ongoing strategic planning efforts and implemented by existing administrative and institutional offices.



REVIEW THE RESEARCH:

Study the social science literature on organizational change, implicit/explicit bias, work-life issues, accumulated disadvantage, and related research on the underrepresentation of certain groups in academic STEM.



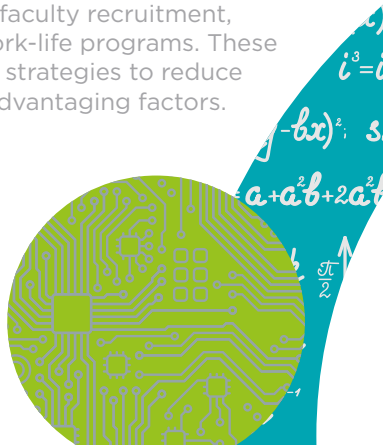
COLLECT, DISAGGREGATE, AND ANALYZE DATA:

Surveys and other faculty data enable institutions to identify systemic gender inequities and to inform the data analysis to understand the reasons for the inequity which are often due to written and unwritten policies, procedures and practices.



REVIEW AND REVISE POLICIES:

Procedures, and Practices: Equity issues are often embedded in written and unwritten policies, procedures and practices for faculty recruitment, tenure and promotion and work-life programs. These can be revised to incorporate strategies to reduce implicit biases and other disadvantaging factors.





IDENTIFY STRATEGIES TO ADDRESS INEQUITIES:

New or modified strategies may be needed to address unique challenges at the institution. However, many strategies can be adopted with little modification.



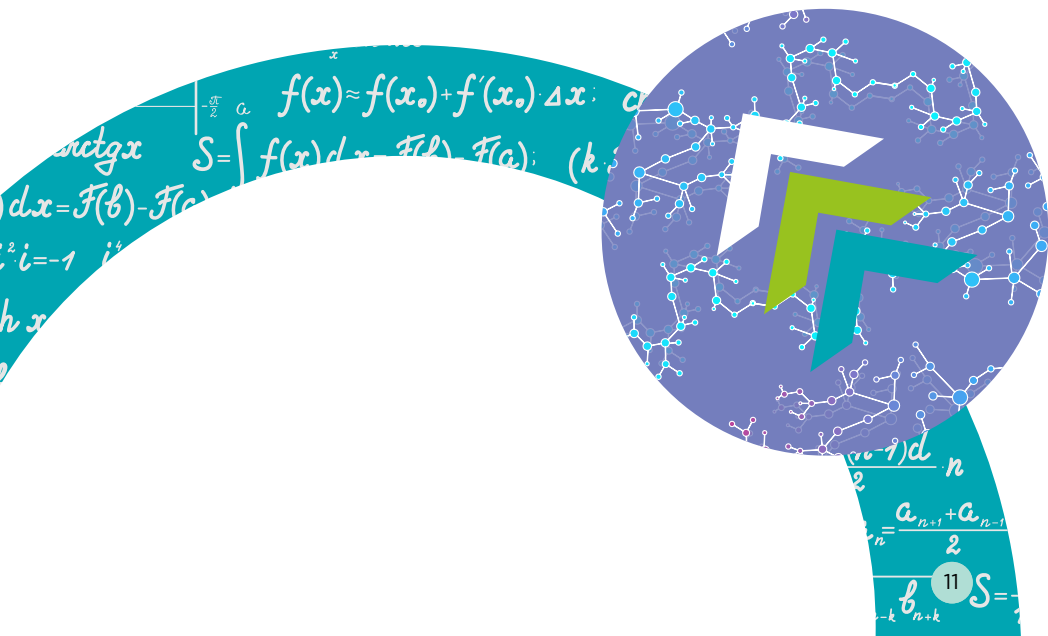
REPORT OUT TO THE ACADEMIC COMMUNITY:

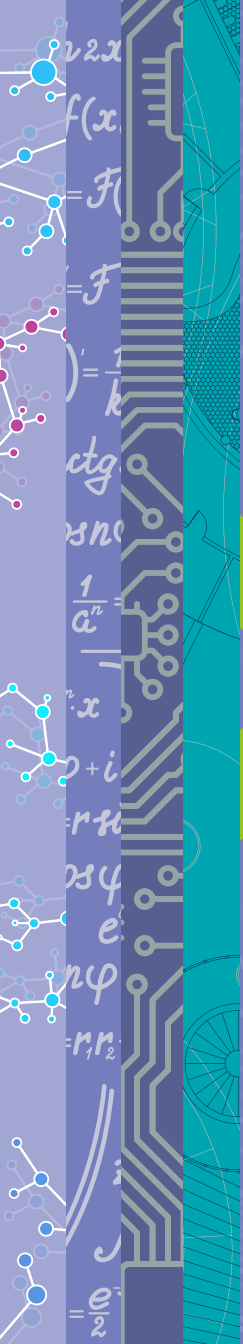
Keep the academic community apprised of institutional data and policy revisions to build ownership and awareness of the efforts and to create feedback opportunities.



ESTABLISH PROCESSES TO MONITOR & REVISE:

Evaluating the impact of policy changes and revisions enables institutions to continually monitor improvements and effectiveness for all faculty. Not all faculty will benefit from some strategies and this would need to be addressed. This will also identify emerging challenges that may develop over time.





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