

ADVANCE

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

**A Cross-Foundation Program at
the National Science Foundation**



The ADVANCE Model

- ▶ Prior programs with goals related to increasing numbers of women in STEM(1980 to 2000)
 - Starting with passage of Science & Technology Equal Opportunities Act of 1980
 - Visiting Professorships for Women in Science and Engineering (1982-1997)
 - Research Planning Grants and Career Advancement Grants for Women Scientists and Engineers (1986-1998)
 - Faculty Grants for Women Scientists and Engineers (1990-1991)
 - Professional Opportunities for Women in Research and Education (1997-2000)
 - ADVANCE Fellowships (2001-2003)
- ▶ The **ADVANCE Institutional Transformation** track represents a switch to a focus on the organizations within which academic careers are experienced – fix institutions of higher education rather than fix women
 - ▶ ADVANCE Institutional Transformation (2001-present)



ADVANCE Program Goals

- ▶ To develop systemic approaches to increase the representation and advancement of women in academic STEM careers
- ▶ To contribute to and inform the knowledge base on gender equity in academic environments
- ▶ To create positive and sustainable change in academic climates



Institutional Transformation (IT)

- ▶ Innovative systemic organizational approaches that include all STEM disciplines and are institution-wide designed to increase the participation and advancement of women in STEM academic careers
 - All faculty, tenure-stream and non- can be included
 - Projects targeting the intersectionality of gender and race, ethnicity, disability, and LGBTQ are encouraged
 - All faculty and administrators – men and women should be involved in the project
- ▶ Proposes activities must be based on and justified by:
 - The institution's data and identified issues in academic career outcomes; and
 - The relevant research.
- ▶ All project must include an original research component related to the project design and goals
- ▶ Up to 5 year projects with appropriate budgets for the proposed scope



Organizational Strategies that Work

Based on reporting to NSF from grantees and publications from grantees.

- ▶ **Equitable Career Support For Individuals**
 - Mentoring, leadership development, network development, research support

- ▶ **Empowerment of Individuals & Leaders**
 - Tools and resources decision making addresses institutionalized barriers to gender equity

- ▶ **Improvement of Institutional Structures**
 - Data collection for creating a visibility for improving equity; policy review for equity

- ▶ **Work Life Support Policies**
 - Dual career hiring; flexible career; family care



Overview of ADVANCE IT* Impact

**Data from the first 19 ADVANCE IT awardee institutions only*

Area of Accomplishment	Accomplishment	Description
Publications	<u>146</u> peer reviewed publications	The first cohorts of ADVANCE institutions are responsible for producing 146 peer reviewed publications on STEM gender equity and institutional transformation.
Presentations	<u>581</u> professional presentations	Over 500 professional presentations were delivered on gender equity and institutional transformation at national/international scientific meetings.
Research Support	<u>90%</u> allocated in research facilities and resources	90% of the first cohort of ADVANCE institutions (up from 26%), allocated facilities and resources to equity/diversity related functions after the life of the grant.
Strategic Planning	<u>79%</u> inclusion of gender in strategic plans	79% of the first ADVANCE cohorts (up from 22%), incorporated equity/diversity objectives into their strategic plans
STEM Hiring	<u>10%</u> increase in new women STEM hires	The percentage of women among new STEM hires increased by 10% between 2001 and 2005
Women in Leadership	<u>146</u> women promoted to leadership positions	The representation of STEM women on promotion and tenure committees, holding endowed/named chairs, and serving as department chairs significantly increased in the first cohorts of ADVANCE institutions.



Examples of ADVANCE Grant Activities

- ❑ The University of Michigan STRIDE (Strategies and Tactics for Recruiting to Improve Diversity and Excellence) Committee
 - Provides training on the unconscious bias literature for senior STEM faculty who work with recruitment committees and promotion and tenure committees is very effective
 - Reduces influences of implicit bias on search committees and promotion and tenure committees
- ❑ Outcomes
 - A significant increase in the number of women hired in science and engineering tenure track positions (14% in 2001 – 34% in 2006)
 - This model has been adapted by many other institutions with and without ADVANCE funds



Examples of ADVANCE Grant Activities

- ❑ The University of Wisconsin at Madison provides chairs with tools and resources to identify issues and to develop action plans to address issues on:
 - ❑ need for and use of climate survey data;
 - ❑ the importance of their role in mentoring new faculty; and
 - ❑ implicit bias (related to letters of recommendation/commendation, annual evaluations, etc.)
- ❑ Outcomes
 - Increase in number of female department chairs (from two to ten in 3 years)
 - Positive changes in faculty climate surveys (less reports of isolation, better “fit”)



Broader Impacts of ADVANCE

- What works to recruit, retain, and promote women in STEM academics improves the institution for all:
 - Issues for other underrepresented groups can also be addressed
 - Men now enter the work force with a greater interest and expectation for work-life balance
 - Non-STEM disciplines benefit from institution-wide changes
- Cost/benefit: The cost of implementing these programs can be offset by productivity and retention of faculty
- Remaining competitive with peer institutions to recruit and retain faculty and students
- 95% of IT projects experience PI turnover during the project
 - these PIs take ADVANCE with them to new institutions



Learn More About ADVANCE

- ▶ NSF ADVANCE Program web page
 - www.nsf.gov/ADVANCE
- ▶ ADVANCE Web Portal links to projects and some materials
 - www.portal.advance.vt.edu/
- ▶ Program Office – ADVANCE@nsf.gov
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