ADVANCE

INCREASING THE PARTICIPATION AND ADVANCEMENT OF WOMEN
IN ACADEMIC SCIENCE AND ENGINEERING CAREERS

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S&E Doctorate Holders at Universities/4 year Colleges

Total Science and Engineering Faculty by Gender

- Assistant Professor: 40% Male, 31% Female
- Associate Professor: 31% Male, 16% Female
- Full Professor: 16% Male
S&E Faculty by Discipline and Gender

Engineering

Assistant Professor: 19%
Associate Professor: 14%
Full Professor: 4%
NSF ADVANCE Program

- **Program Goal:** Increase the representation and advancement of women at all levels in academic science and engineering careers

- **Program History**
  - Initiated at the National Science Foundation in 2001
  - Over $130M invested to support various ADVANCE projects
  - >100 ADVANCE projects funded thus far at institutions of higher education and STEM related not-for-profit organizations in 41 states, the District of Columbia and Puerto Rico
ADVANCE Characteristics and Criteria

- **Major Characteristics**
  - Support new approaches to improving the climate for women in U.S. academic institutions and to facilitate women's advancement to the highest ranks of academic leadership
  - Include international activities that directly support the goals of ADVANCE

- **Major Criteria**
  - Relevant data on STEM faculty and institution leadership
  - Identification of and commitment to policy review, revision and implementation
  - Demonstrated commitment of institutional leadership
  - Commitment to sustainability
  - Based on conceptual framework grounded in existing literature regarding organizational change and diversity
ADVANCE Program Evolution

- **IT-Start** (07-582)
- **PAID** (05-584; 07-582)
- **Fellows** (01-69; 02-121)
- **Leadership** (01-69; 02-121; 05-584)
- **Institutional Transformation** (01-69; 02-121; 05-584; 07-582)
ADVANCE Awards, 2001-2008

The bar chart shows the total number of awards for different fiscal years:
- 2001 & 2002: 22 awards, with IT: 9, Fellows: 12, PAID: 1
- 2003 & 2004: 19 awards, with IT: 10, Fellows: 10, PAID: 9
- 2005 & 2006: 15 awards, with IT: 9, Fellows: 6, PAID: 9
- 2007 & 2008: 11 awards, with IT: 9, Fellows: 2, PAID: 2
Current Award Mechanisms

- **Institutional Transformation (IT)**
  - Comprehensive, *institution-wide*, projects transform the culture of the institution

- **Institutional Transformation Catalyst (IT-Catalyst)**
  - *Planning grants* to support basic work to prepare for transformation

- **Partnerships in Adaptation, Implementation and Dissemination (PAID)**
  - Support for use of existing innovative materials and practices
ADVANCE IT - Catalyst

- **Purpose**
  - Planning grants to support basic work to prepare for transformation at institutions with limited resources

- **Funding**
  - 2-year project period; $200,000 maximum for 2 years

- **IT Catalyst Project Characteristics**
  - Data collection on faculty, administrators
  - Awareness building
  - Policy review
  - Pilot activity implementation
ADVANCE IT-Start Grantees 2008 (now IT-Catalyst)
ADVANCE PAID Awards
Partnerships in Adaptation, Implementation and Dissemination

- **Purpose**
  - Adaptation and implementation of materials, tools, research, and practices that have been demonstrated to be effective in increasing the participation and advancement of women in STEM academic careers
  - Dissemination and diffusion
  - Scientific research designed to advance understanding of gender in the STEM academic workforce

- **Funding**
  - 1 to 5 year projects with variable funding; no limit on funding request

- **PAID Project Characteristics**
  - Workshops
  - Leadership Development Programs
  - Centralized Resource Centers
  - Social Science Research Related to Women in STEM Academics
PAID Grantees 2006-2008
ADVANCE IT
Institutional Transformation

- **Purpose**
  - Comprehensive, institution-wide, projects to transform the culture of the university or college

- **Funding**
  - 5-year projects at average $2M to $4M funding level

- **IT Project Characteristics**
  - Focus on "integrated approach" toward policy changes to enhance the potential for demonstrable and sustainable change
  - Projects are grounded in existing social science literature regarding organizational change and diversity
  - Inclusion of input from institutional departments and from ALL levels of the administration
ADVANCE Institutional Transformation Grantees 2001-2008

Small IT awards to promote promising practices:
- Duke University
- Marshall University
- New Jersey Institute of Technology
- University of Maryland, Eastern Shore

[Map showing locations of grantees]
ADVANCE Best Practices - *Implicit Bias*

- **Perceptions** about different categories of individuals and actions that are taken based on those perceptions

- 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**
  - Increase in women hired in science and engineering tenure track positions (14% in 2001 – 34% in 2006)
ADVANCE Best Practices - Department Leadership

- University of Wisconsin at Madison
  - Provides chairs with tools and resources to identify issues and to develop action plans to address issues:
    - Training on:
      - Need for and use of climate survey data
      - Importance of their role in mentoring new faculty
      - Implicit bias (related to letters of recommendation/commendation, annual evaluations, etc.)

- Outcomes
  - Increase in number of female department chairs (2 – 10/3 years)
  - Positive changes in faculty climate surveys (less reports of isolation, better “fit”)
ADVANCE Best Practices – *Faculty Development*

- Approaches for faculty development grants:
  - Supporting attendance at professional meetings, leadership development conferences
  - Providing funds to visit an external mentor or to bring one to campus
  - Encouraging interdisciplinary collaboration
  - Support for bridge funding: between start up funding and first external award, or between external funding awards

- Approaches for Mentoring:
  - Formal and informal networks
    - Emphasis on research networks
  - Inter and intra-institutional mentoring
  - Career coaching
  - Faculty advocates
ADVANCE Best Practices - *Policies/Procedures*

- Review and revision of key institutional policies
  - Tenure and promotion decision making
  - Requests for leave or tenure clock stopping
  - Access to resources or services
  - Allocation of teaching, service workload
- Work-Life Balance
  - Policies and practices that address dual career household issues
    - Dual hiring policies and practices
  - Tenure clock stopping policies and practices
  - Conversion of part-time positions to tenured or tenure track positions
ADVANCE Best Practices - Women of Color

- Social support for campuses in remote locations
  - Collaborations with culturally relevant organizations/institutions
  - Access to/appreciation for opportunities for civic engagement
- Culturally competent mentoring
- Awareness programs focused on issues directly related to women of color (implicit bias, microinequities, health equity)
- Targeted seminar series featuring women of color scientists
- Work-life balance programs targeted toward women of color (dependent care for single parenthood)
Program Management

ADVANCE is a “NSF-wide” program
- The Assistant Directors (ADs) of each participating directorate reviews and approves the program solicitation and management plan
- Program funds are located in the participating directorates and offices

ADVANCE Implementation Committee (AIC)
- One or more representatives from each participating Directorate and Office
- Acts as an advisory committee
- Meets monthly to discuss program management and related issues
Program Directors:
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ADVANCE NSF Website
- www.nsf.gov/advance

ADVANCE Web Portal
- www.advance-portal.net