NSF ADVANCE Institutional Transformation Award at UW-Madison
Six Schools/Colleges Targeted: Physical & Biological Sciences

- College of Agricultural and Life Sciences (2 Departments)
- College of Engineering (9 Departments)
  - Materials Science & Engineering is an MSP discipline
- College of Letters and Science (8 Departments)
  - Astronomy, Chemistry, Mathematics, Physics, and Statistics are MSP disciplines
- Medical School
- School of Pharmacy
- School of Veterinary Medicine
Women in Science & Engineering Leadership Institute (WISELI)

WISELI’s goals:
- to promote the participation and advancement of women in academic science and engineering
- to have the gender ratios of the faculty, chairs, and deans reflect the gender ratio of the student body
WISELI Initiatives - Workshops

- **Training for chairs of hiring committees**
  - Use social science literature on impact of unconscious biases and assumptions on evaluations of men and women
  - Physical Sciences: 25 faculty attending, 4 MPS

- **Climate workshops for department chairs**
  - Based on concepts of active learning, from “scientific teaching” literature
  - Physical Sciences: 7 departments, none MPS
WISELI Initiatives - Grants

- **Celebrating Women in Science & Engineering Grant Program**
  - Small (~$1K-$3K) grants to departments or groups to bring in speakers who will meet WISELI’s goal to “enhance the participation and advancement of women in academic S&E”
  - Addresses the isolation and invisibility of women in STEM fields
  - 10 of 19 awards have gone to Physical Sciences (3 MPS)
**Life Cycle Research Grant program**

- Provide funds for a faculty member who is experiencing a life crisis simultaneously with a critical career juncture. Awards are large (~$30K)
- Designed to alleviate some of the work/life conflicts that disproportionately affect women earlier in the career
- 6 applications from Physical Science departments (of 20 total); 1 from MPS
- 9 awards, none to Physical Sciences (yet—one is pending)
WISELI Initiatives - Other

- Conversion of academic staff to tenure-track
  - One case attempted in MPS department, failed
- Awards and honors
- Leadership development for academic staff
- Workshops on building effective research teams
  - In development
- Senior women initiative
  - Discovery interviews, professional development opportunities, study of entrepreneurship
  - 7 out of 10 senior women in MPS participate in WISELI in some way; 9 out of 17 senior women in other physical sciences participate in WISELI
- Documentary video

Brennan, Patricia; Jennifer Sheridan; Molly Carnes; Jo Handelsman; and Bernice Durand. 2004. “Discovering Directions for Change in Higher Education Through the Experiences of Senior Women Faculty.” Accepted for publication, special issue of *Journal of Technology Transfer* (Volume 31, Issue 1. Jan./Feb. 2006).


Pribbenow, Christine Maidl; Susan Daffrinrud; and Deveny Benting. 2004. “The Climate for Women Faculty in the Sciences and Engineering: Their Stories, Successes, and Suggestions.” In progress.

Ford, Cecilia. 2003. “Gender and Language in/as/on Academic Science: Combining Research with a Commitment to Institutional Change.” In progress.

- Life Cycle Research Grants
- Creating Space
- Celebrating Women in S&E Grants
- Conversion to tenure-track
- Awards and honors
- Endowed Professorships for Women in Science
- Leadership Development for academic staff
- Climate Workshops for Department Chairs
- Workshops for Search Committee Chairs
- Workshops on building effective research teams
- Senior women initiative
- Documentary Video
- Evaluate existing programs
- Resource Study
- Interviews with women faculty and staff in S&E
- Study of Faculty and Academic Staff Worklife at UW-Madison
- Discourse analysis of women’s communication strategies
- Ethnographic study of gendered interactions in the laboratory setting
- Study of Career Choices in Engineering
Percent Female, New Junior Hires in Physical Science Departments 1999-2004

- **MPS**
  - 1999-2002: 5 women, 19 men
  - 2003-2004: 3 women, 8 men

- **Other**
  - 1999-2002: 5 women, 45 men
  - 2003-2004: 7 women, 10 men
Percent Women, MPS Departments vs. Other Physical Science Departments 2000-2004

- MPS-Assistant
- MPS-Tenured
- Other-Assistant
- Other-Tenured

WISELI

0.0% 5.0% 10.0% 15.0% 20.0% 25.0% 30.0%
Percent Female
2000 2001 2002 2003 2004

Graph showing the percent female in MPS and other departments from 2000 to 2004, with a notable increase in the MPS-Tenured category post-2003.
The climate for women in my department is good

* Significant t-test between women and men faculty at $p<.05$.
† Significant t-test between dept. chairs and all other faculty at $p<.05$. 
The climate for faculty of color in my department is good

* Significant t-test between minority and majority faculty at $p<.05$.
† Significant t-test between dept. chairs and all other faculty at $p<.05$. 
Conclusions

- MPS faculty and leaders are not participating to the same extent as faculty/leaders in other Physical Science departments.

- MPS results (particularly in hiring) are lagging the results for Other Physical Science departments.
  - This is a correlational observation! We cannot “prove” that WISELI’s work has “caused” any observed gains.

- Leadership matters—the units with the most committed leaders are participating at higher rates, and have bigger gains.
Conclusions (cont’d)

- Can’t solve this problem without involving men
  - ADVANCE program innovative in this regard—address under-representation from an institutional perspective rather than by supporting only individual women
- Continued monitoring of gender equity is vital to avoid “relapse”
Additional slides
Percent Women Faculty, by Division
University of Wisconsin-Madison

- Physical Sciences
- Social Studies
- Biological Sciences
- Arts & Humanities

Percent Women Faculty

- 2000: 5.0%
- 2001: 15.0%
- 2002: 25.0%
- 2003: 35.0%
- 2004: 45.0%
Percent Women Faculty, by Rank
Physical Science Departments
Percent Women Faculty, by Rank
Biological Science Departments

Percent Women Faculty

2000 2001 2002 2003 2004

WISELI

Assistant  Associate  (Full)  Total
Women as Percentage of New Hires
Biological and Physical Sciences

WISELI

% Women Hires

99-00 00-01 01-02 02-03 03-04 04-05

Untenured Tenured Total

Women as Percentage of New Hires
Biological and Physical Sciences
Attrition Rates (Resign), by Gender
Biological Sciences

- Women
- Men
Attrition Rates (Resign), by Gender
Physical Sciences

Women
Men

WISELI
% Women in Administrative Positions
(Dept. Chair, Deans, Center Directors)
% Female, Major UW-Madison Faculty Awards*

* Vilas Associate, Hilldale, Romnes, Kellett
Three Themes in All Activities/Initiatives

- Use *evidence-based* approach to drive institutional change
- Foster individual *behavioral change*
- Ensure *sustainability* of the transformation