



W I S E L I

*Women in Science & Engineering Leadership Institute  
University of Wisconsin-Madison*

**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)

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## 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)



## WISELI Initiatives – Grants (Cont'd)

- ***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



## WISELI Initiatives – Research & Evaluation

- Gunter, Ramona and Amy Stambach. 2003. “As Balancing Act and As Game: How Women and Men Science Faculty Experience the Promotion Process.” *Gender Issues*. 21(1):24-42.
- 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).
- Carnes, Molly; Stacie Geller, Eve Fine, Jennifer Sheridan, and Jo Handelsman. 2004. NIH Director’s Pioneer Awards: Could the Selection Process Have Favored Men?” Under Review.
- Handelsman, Jo; Nancy Cantor, Molly Carnes, Nancy Hopkins, Cora Marrett, Denice Denton, Eve Fine, Sue Rosser, Jennifer Sheridan, and Virginia Valian. 2004. “More Women in Science.” Under Review.
- Pribbenow, Christine Maidl; Susan Daffinrud; 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.
- Pribbenow, Christine Maidl and Deveny Benting. 2004. “Why Women Leave.” 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

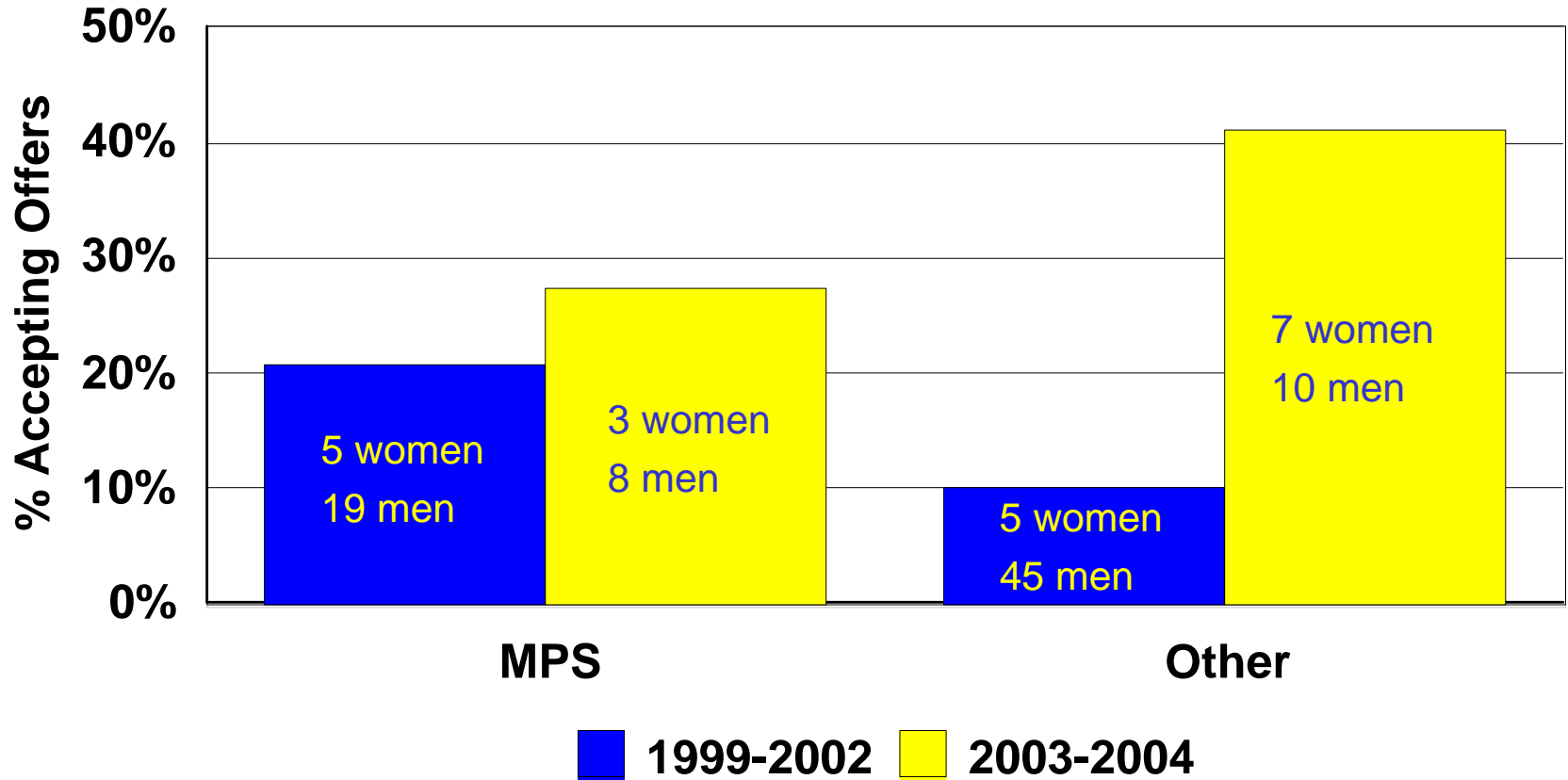
- Study of Faculty and Academic Staff Worklife at UW-Madison

- Discourse analysis of women's communication strategies

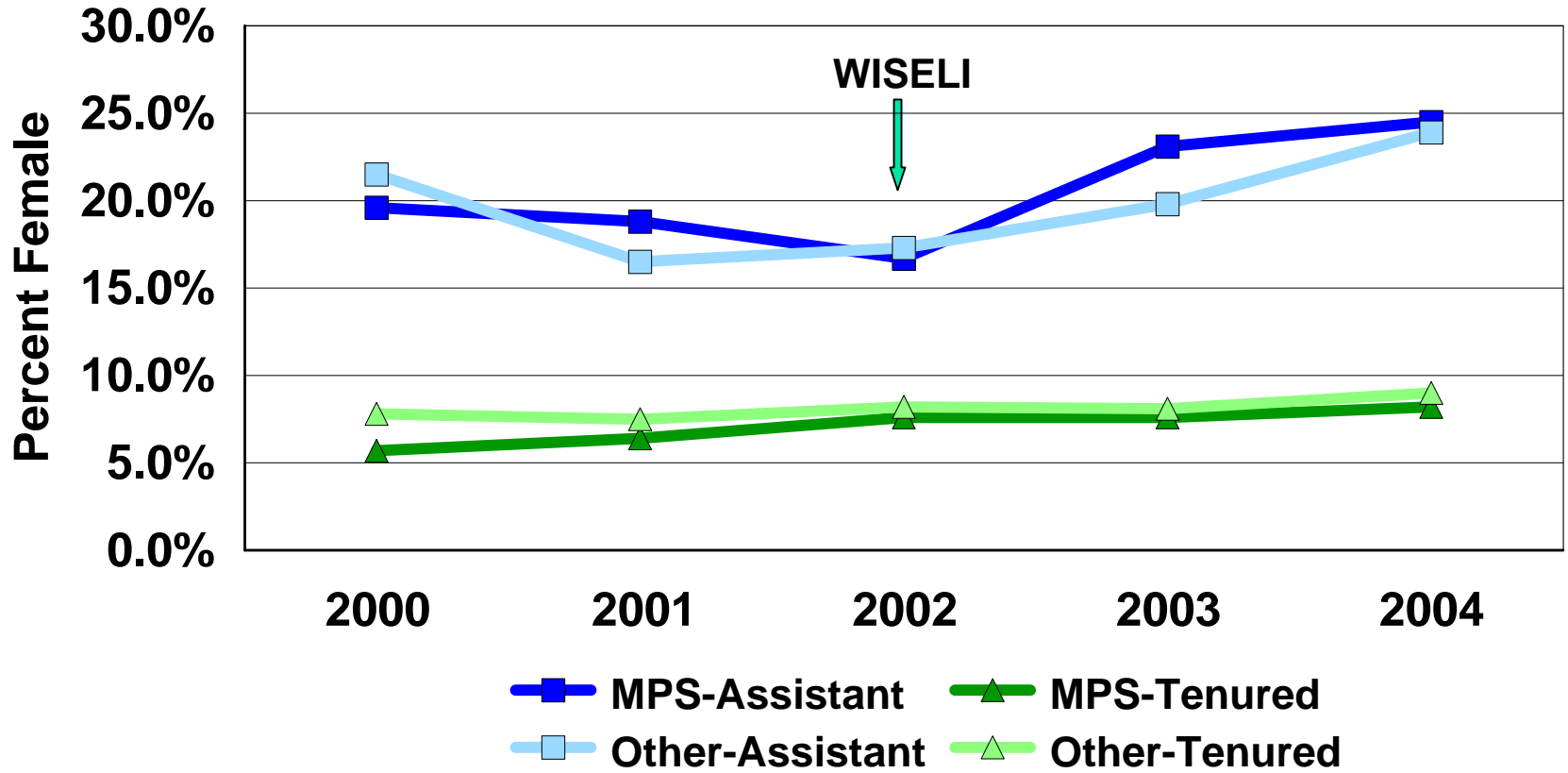
- Ethnographic study of gendered interactions in the laboratory setting

- Study of Career Choices in Engineering

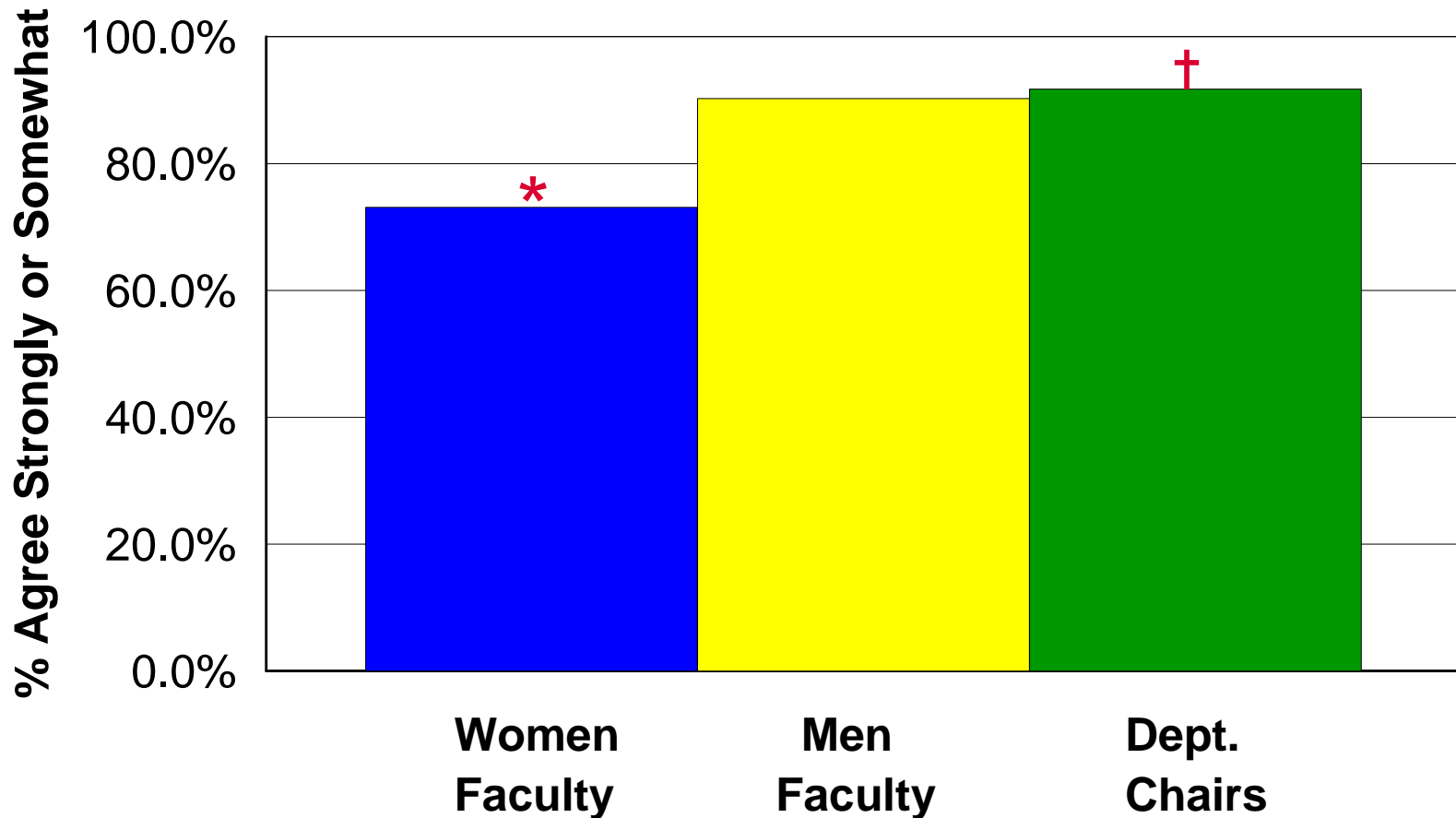
# Percent Female, New Junior Hires in Physical Science Departments 1999-2004



# Percent Women, MPS Departments vs. Other Physical Science Departments 2000-2004



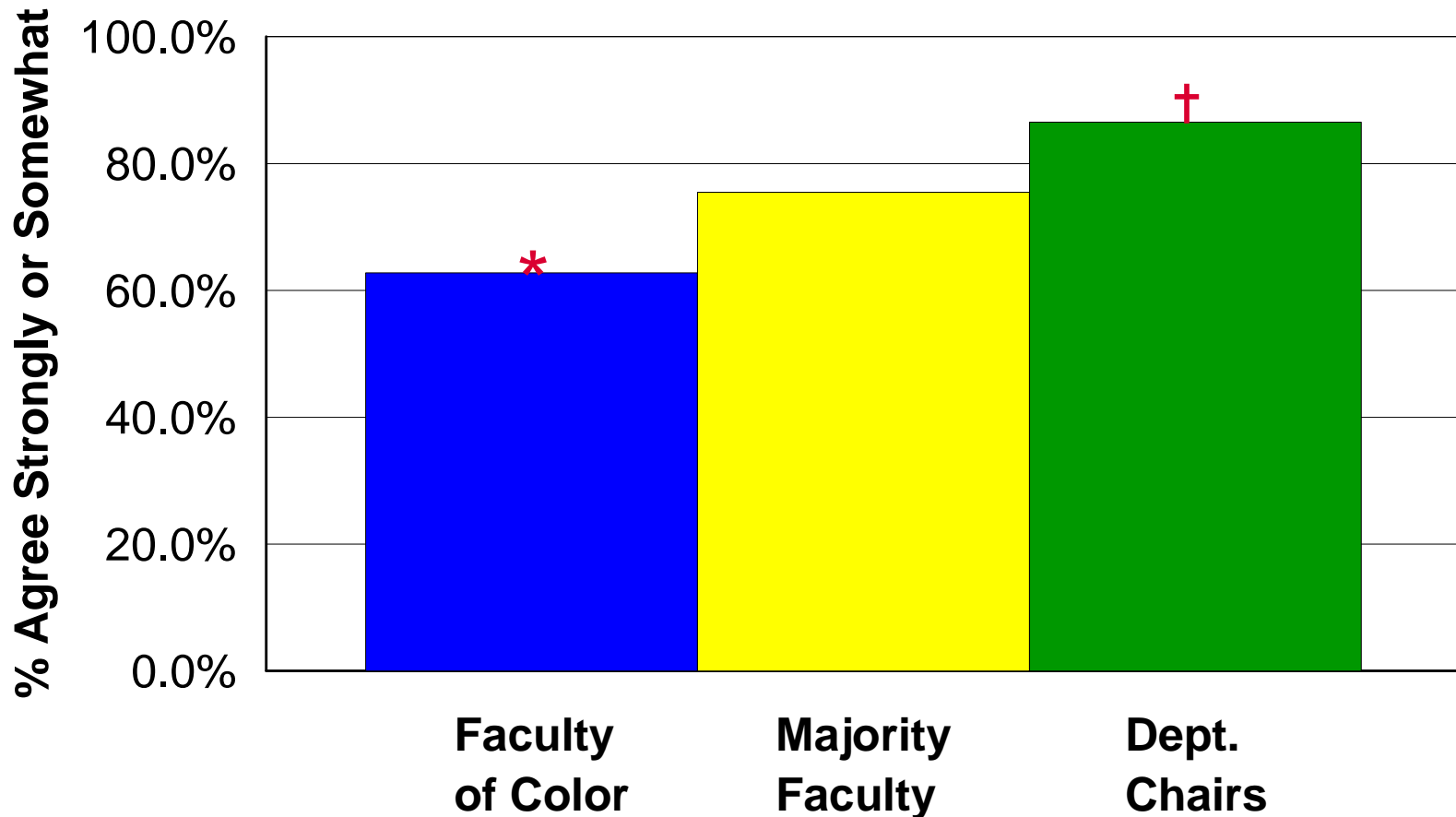
# The climate for women in my department is good



\* 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

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- 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)

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- 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

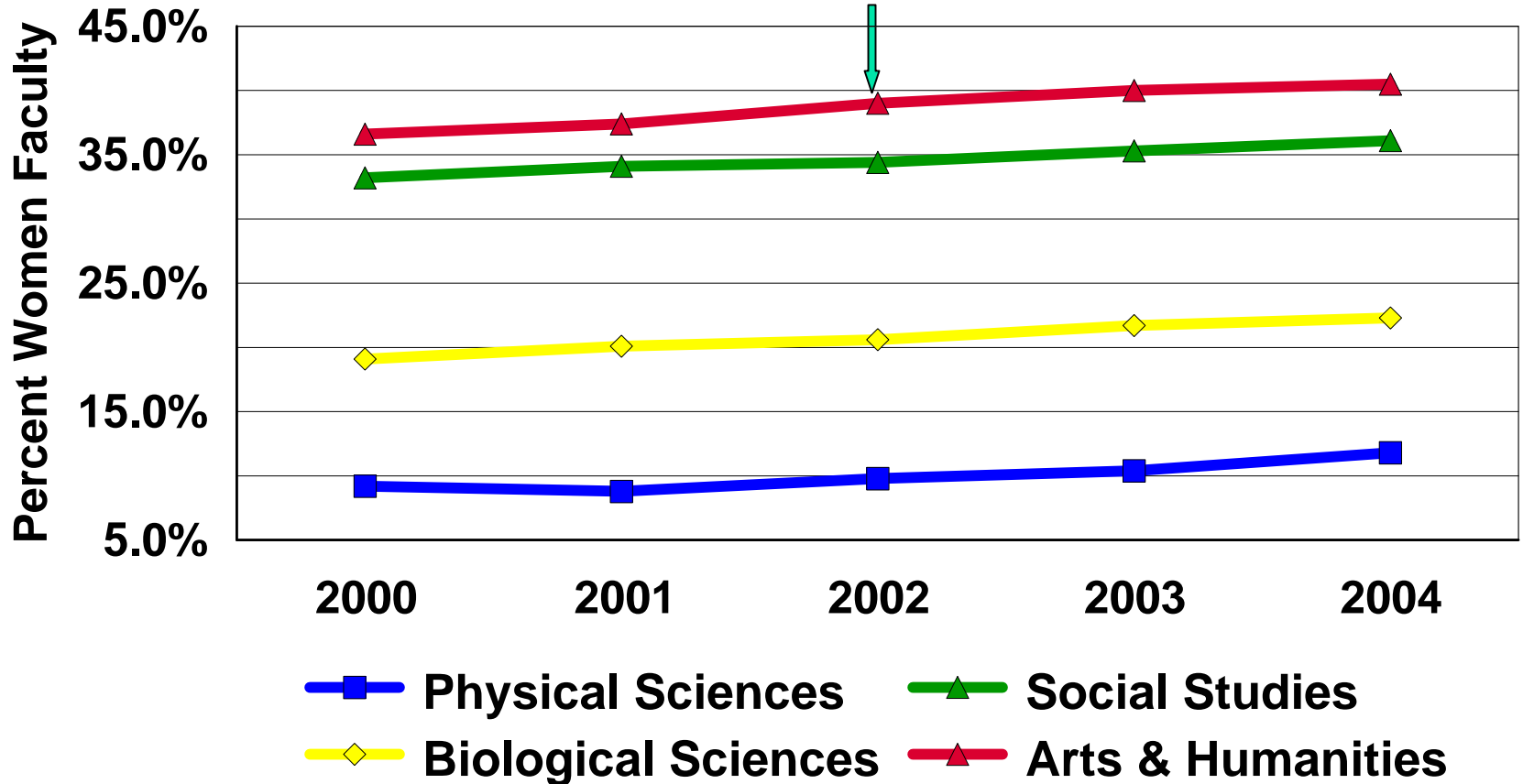
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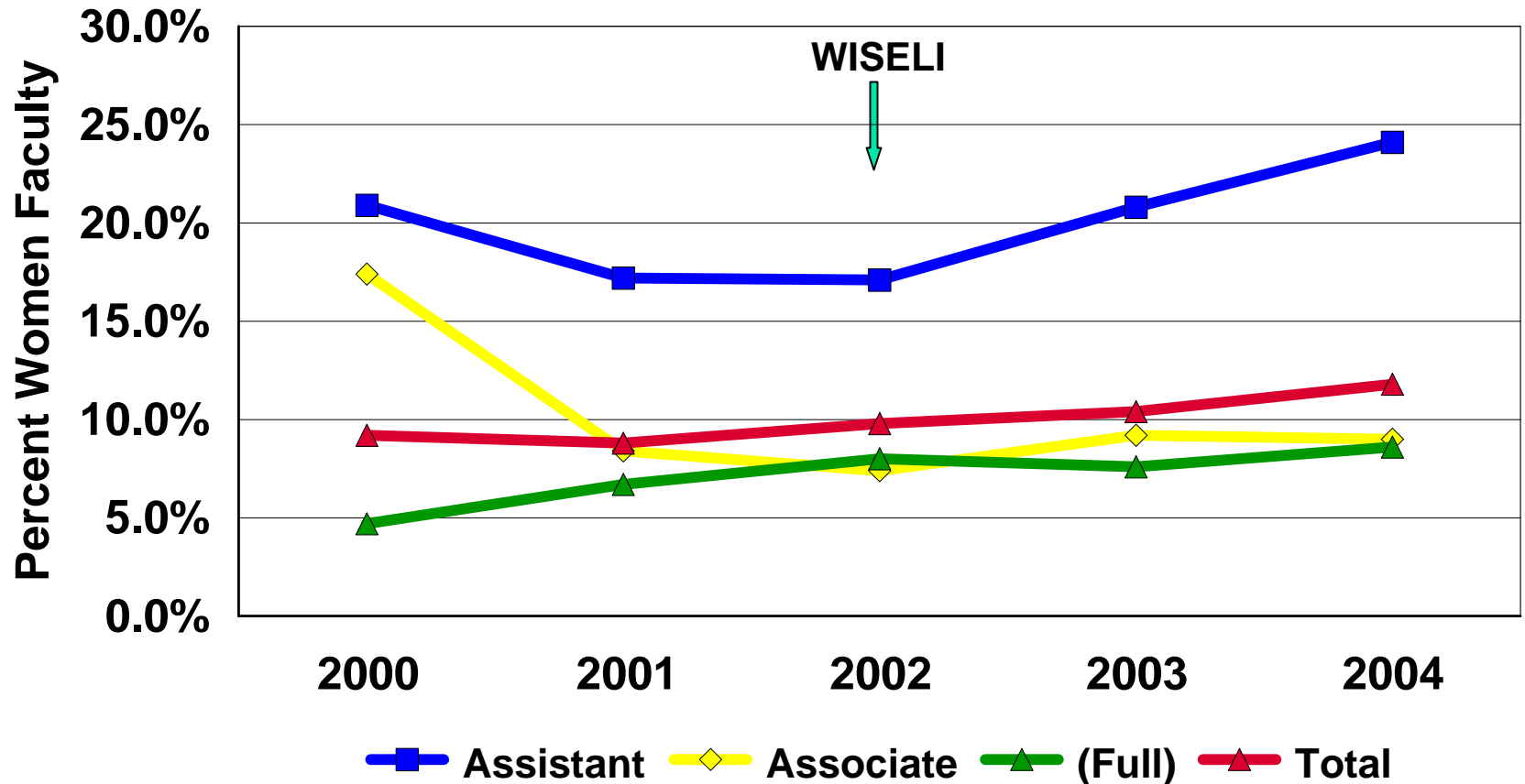


# Percent Women Faculty, by Division University of Wisconsin-Madison

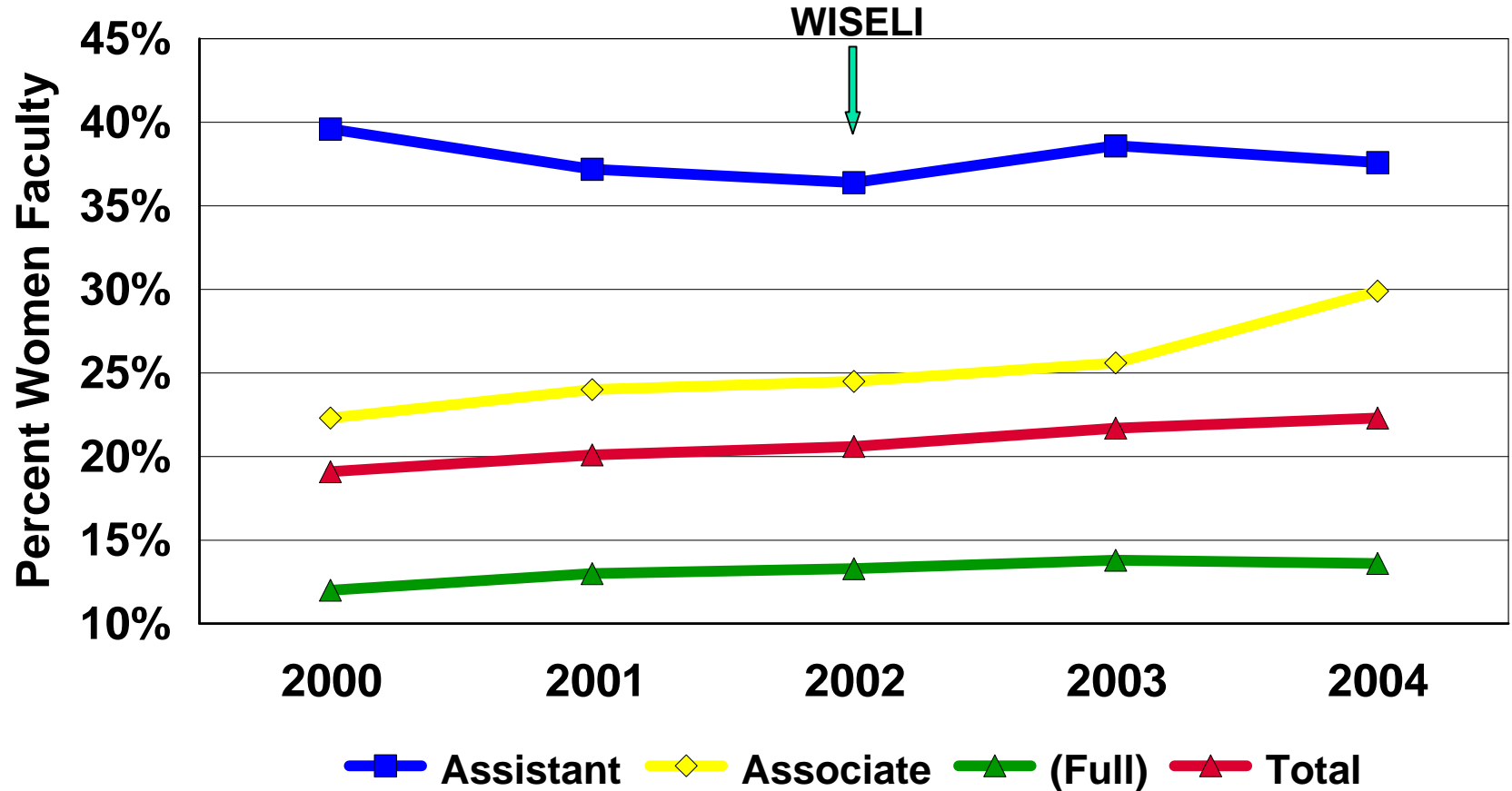
WISELI



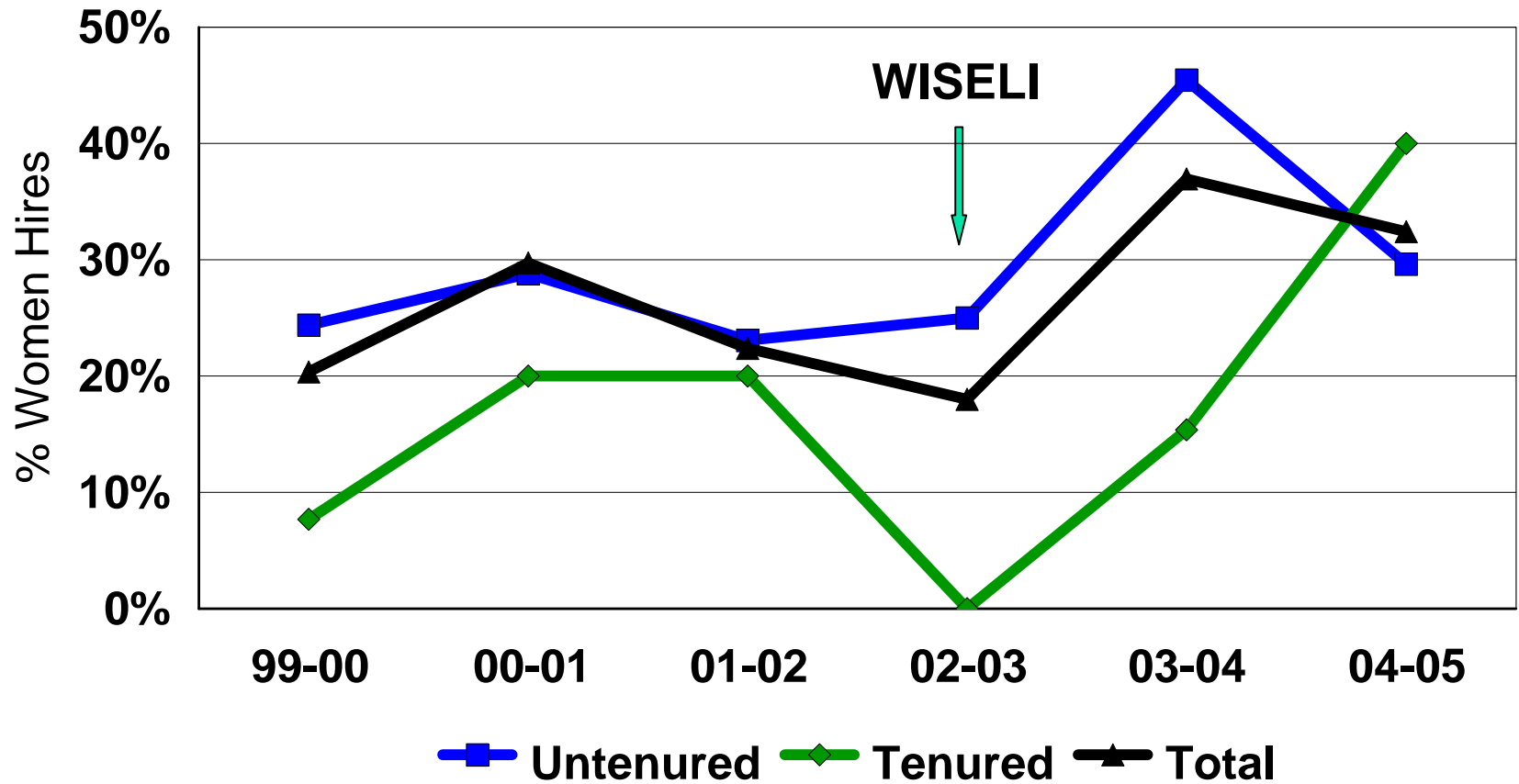
# Percent Women Faculty, by Rank Physical Science Departments



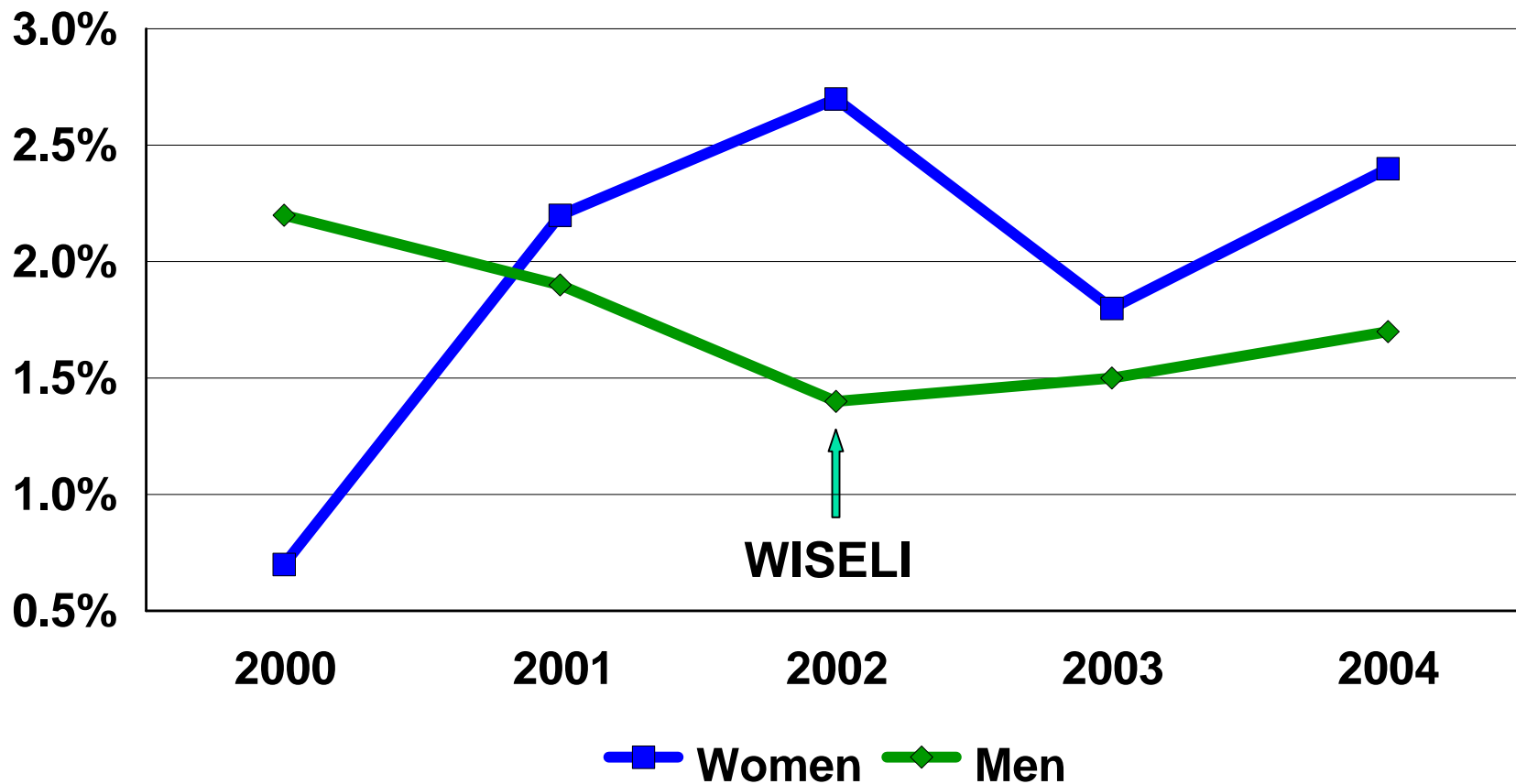
# Percent Women Faculty, by Rank Biological Science Departments



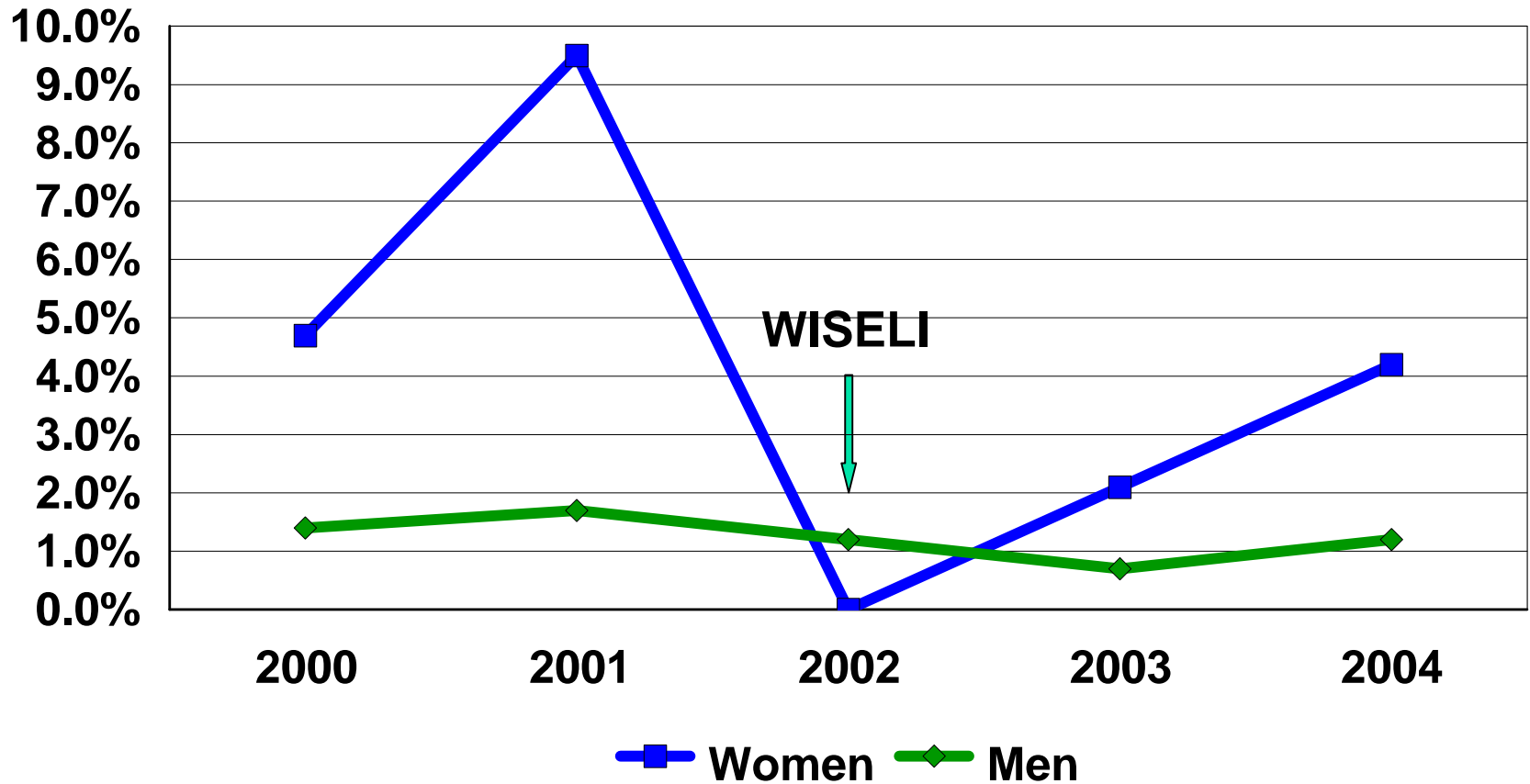
# Women as Percentage of New Hires Biological and Physical Sciences



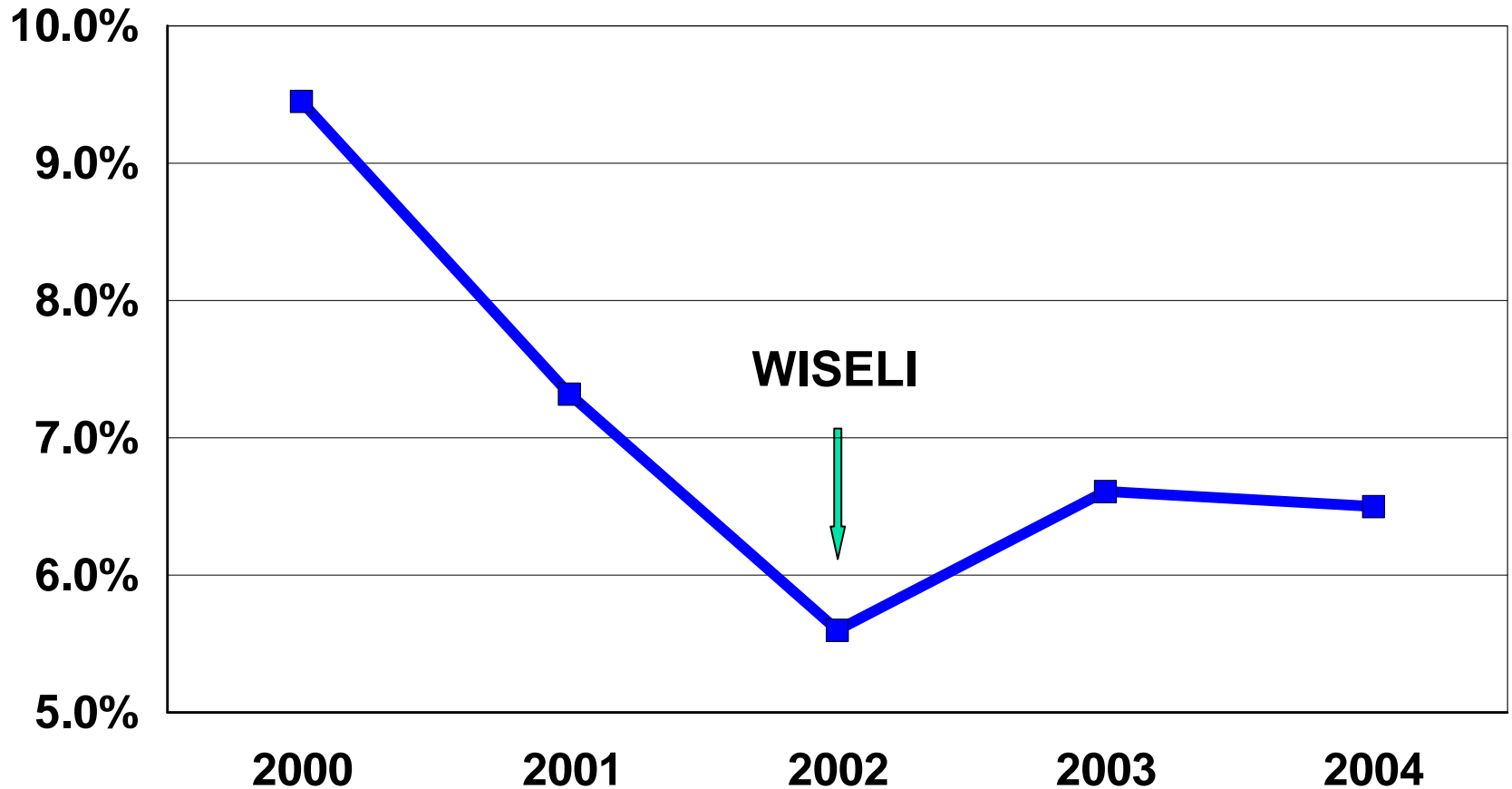
# Attrition Rates (Resign), by Gender Biological Sciences



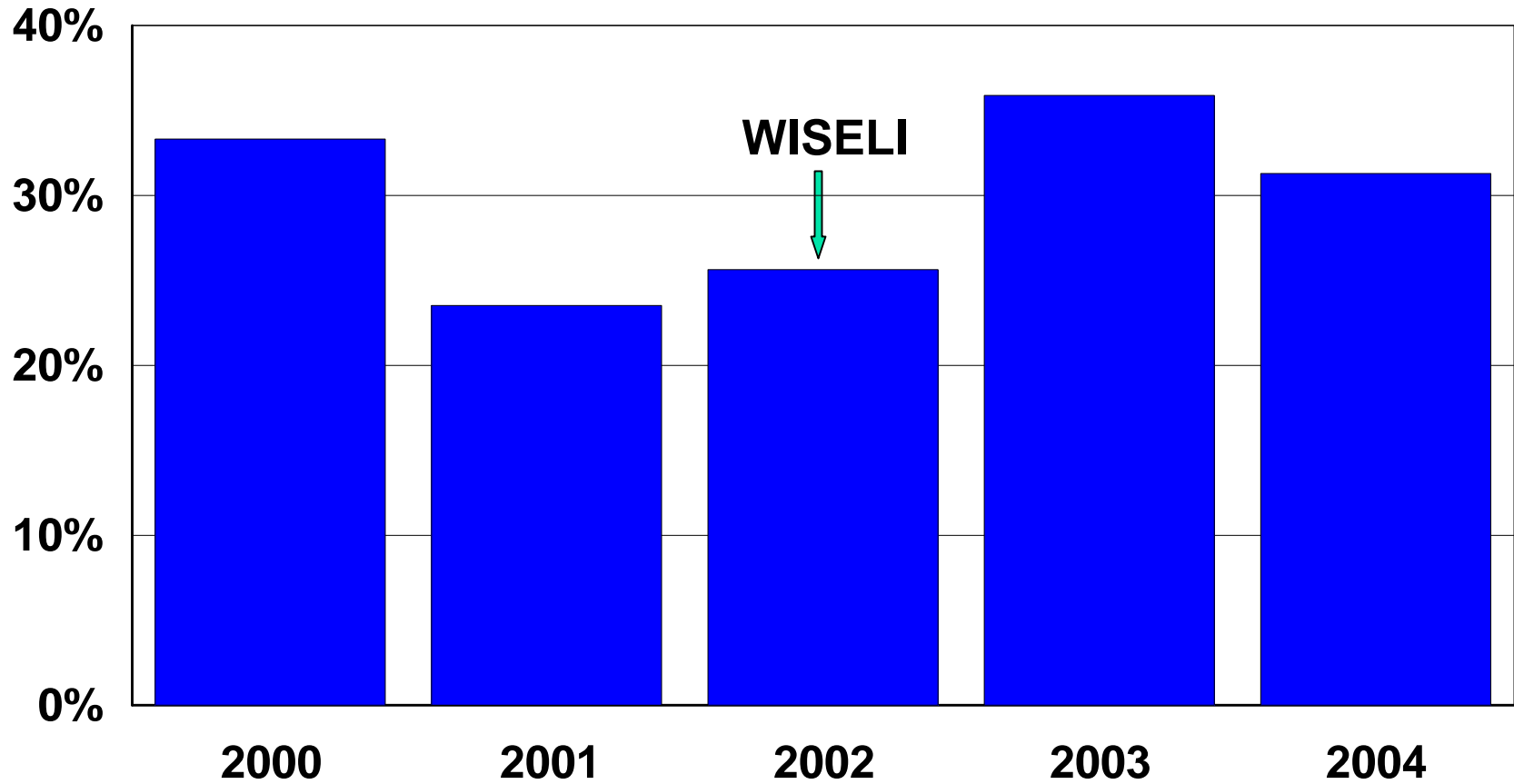
# Attrition Rates (Resign), by Gender Physical Sciences



# **% Women in Administrative Positions (Dept. Chair, Deans, Center Directors)**



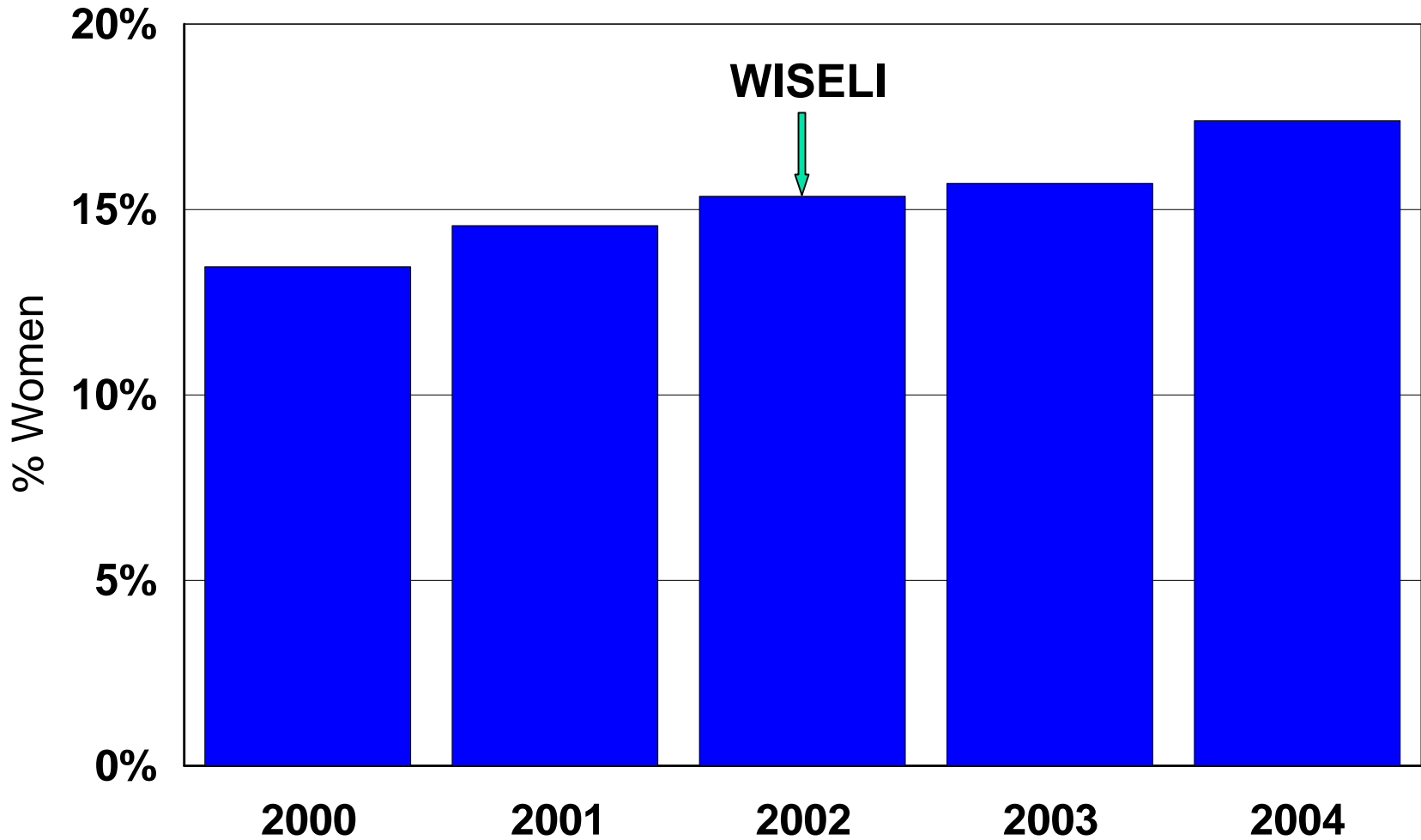
# % Female, Major UW-Madison Faculty Awards\*



\* Vilas Associate, Hilledale, Romnes, Kellett



## Women as Percentage of Named Professorship Recipients





## Three Themes in All Activities/Initiatives

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



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