

Testimony to the Subcommittee on Research and Science Education,  
House Committee on Science and Technology  
At the hearing on:  
Women in Academic Science and Engineering  
October 17, 2007

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Chairman Baird, Ranking Member Ehlers, and Members of the Subcommittee, thank you for the opportunity to testify on the Report of The National Academies: *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*. The report finds that while the United States clearly must take steps to maintain its scientific and engineering leadership in a climate of increasing economic and educational globalization, it cannot take advantage of all of its human capital, because women face significant barriers in every field of science and engineering. This crisis clearly calls for a transformation of academic institutions. That requires action by educational leaders and also the support of federal funding agencies and foundations, governmental agencies, and Congress.

We must remove the obstacles that are holding women back in science and engineering fields. Eliminating gender bias in universities will require immediate, overarching reform and decisive action by university administrators, professional societies, government agencies, and Congress. Nothing less than a coordinated effort across public, private, and governmental sectors will achieve the reforms necessary for America to retain its competitiveness on the global stage.

### Findings

The report finds that:

- Women have the ability and drive to succeed in science and engineering
- Women who are interested in science and engineering careers are lost at every educational transition
- The problem is not simply that loss through the pipeline, because in the rank of full professor at the top research institutions women on average hold less than 15% of tenured faculty positions in the social, behavioral, and life sciences, and dramatically less than that in the all other fields of science and engineering
- Women are very likely to face discrimination in every field of science and engineering
- A substantial body of evidence establishes that most people – both men and women – hold implicit biases
- Evaluation criteria contain arbitrary and subjective components that disadvantage women because women faculty are paid less, promoted more slowly, receive fewer honors, and hold fewer leadership positions than men,

and these discrepancies aren't based on any of the standard measures of performance

- Academic organizational structures and rules contribute significantly to the under-use of women in academic science and engineering
- The consequences of *not* acting will be detrimental to the nation's competitiveness

## Recommendations

The report's recommendations to federal funding agencies and foundations, to federal agencies, and to Congress are as follows:

*Federal funding agencies and foundations* should counter these biases and begin to make full use of our full talent pool in this critical area, by making sure that all rules and regulations support the full participation of women. All science research funding agencies should:

- Provide workshops on, and expand research support for, gender bias
- Collect, store, and publish composite information for all funding applications and awards
- Provide funding opportunities for dependent care support – including attendance at work-related conferences and meetings, and interim technical or administrative support during dependent care related leave of absence – the Packard Foundation and NIAID have funded such programs that could be models for other granting agencies
- Expand support for research on efficacy of organizational programs designed to reduce gender bias. NSF and ADVANCE have funded model programs

*Federal agencies* should lay out clear guidelines, leverage resources, and rigorously enforce existing anti-discrimination laws in all institutions of higher education to increase the science and engineering talent developed in this country

*Congress*, because of the insidious ways in which bias can permeate even an environment that aspires to transparency, like the academy, must direct its full attention to enforcing antidiscrimination laws, including regular oversight hearings to investigate the enforcement activities of the Department of Education, the EEOC, the Department of Labor, and the science granting agencies.

## Challenges and Solutions

In preparing this report we discovered many challenges, but also, promising solutions to the problems of achieving gender equity in academic science and engineering. The most significant challenge is how deeply ingrained gender and racial biases are in, and part of the fabric of, our society. People – both men and women – for the most part intend to be fair, but act on unexamined biases when evaluating others. Many excellent scientists and engineers are opting out of the academic career path because of the perceived hostile

climate for women – in hiring, tenure, promotion, and compensation – particularly those who wish to combine family or community service with research and teaching. We are losing too many who could contribute to the nation’s science and engineering enterprise, and who could increase our chances of maintaining our position as a global leader in these critical areas.

But the landscape also includes some promising solutions. Ongoing efforts to identify and examine biases have begun to change recruitment, hiring, and retention processes at universities. One example is a 2006 meeting, <http://www.chem.harvard.edu/groups/friend/GenderEquityWorkshop/>, co-sponsored by NIH, DOE, and NSF, during which 60 chairs of chemistry departments were brought together for a 2-day session to identify strategies that chemistry departments, universities, and federal agencies could implement to encourage and enable broader participation of women in academic research careers. The session covered demographics of the training “pipeline”, research on biases that affect recruitment and hiring, and development action items. An NSF ADVANCE-funded program at the University of Wisconsin, Madison, provides on-site workshops for department chairs, <http://wiseli.engr.wisc.edu/>, and search committee chairs. These three-session workshops provide chairs an opportunity to explore the climate in their department, identify key issues, develop action plans, and discuss the impact of changes they have made. These examples are models that can be adopted across the country.

Another uncommonly effective model, developed when I was Chancellor of the University of Wisconsin, the Women in Science and Engineering Leadership Institute (WISELI), <http://wiseli.engr.wisc.edu/>, is a centralized, visible administrative structure with a mission to address a number of impediments to women’s academic advancement.

- The center structure of WISELI allows the institute to bring the issues of women scientists and engineers from obscurity to visibility
- It provides an effective and legitimate means of networking women faculty across departments, decreasing isolation, advocating for and mentoring women faculty, and linking women postdoctoral fellows in predominantly male environments with a variety of women faculty
- WISELI ‘s long-term goal is to have the gender of the faculty, chairs, and deans reflect the gender of the student body
- To accomplish these goals, WISELI will be a visible, campus-wide entity, endorsed by top-level administrators, which will use UW-Madison as a "living laboratory" to study the problem and implement solutions

#### A Case in Point: The University of Miami

For me, as President of the University of Miami, the problem is very close to home. Leadership on this issue must begin at the top, but it can’t be simply legislation from the top. It requires buy-in and accountability at every link in the chain of command. Within the past two years at the University of Miami, I have put in place an almost completely new senior leadership and decanal team, and we have made one of our very top priorities

the task of addressing the issues of gender (and other) biases, and redressing inequities, in recruitment, hiring, promotion, retention, and compensation.

Our report provides a Scorecard that allows universities to track and evaluate their progress on these issues, and the University of Miami's is included in my written statement. It is a humbling experience indeed to complete one of these scorecards, even in a place in which there is the commitment and leadership we have in place here, but our completed scorecard is helping us as we move forward on these issues. Our strategies and programs to address the issues include the following:

- Last year, our *Faculty Senate's Committee on Women and Minorities*, produced a report on diversity and equity in the tenured and tenure-track faculty, by job class and gender in all the schools and divisions. We focused explicitly on the areas of science, technology, engineering, math, and medicine.
- We hired an *Associate Dean for Faculty Diversity and Development* for our Miller School of Medicine, who also will work with the Provost and me on university-wide programs and assessment
- We developed a *Bridging Program* through which the Provost's office provides funding between the period of an opportunity/diversity hire, and the time that a tenure line opens within a department
- Our *Post Doc Funding Program* is designed to identify promising new women and minority Ph.D. graduates who are prospective faculty hires, but not as accomplished in their research agenda as we would like. The participants are hired with the expectation that following the post doc year – during which they will receive research and mentoring support and augment their scholarly profiles – they will enter a tenure-track position.
- *Salary equity* issues are being addressed directly by the Provost, who for two years has been working directly with the deans to first systematically identify inequities, and then to work with the Provost to address them.
- Our *Workload Relief Program* provides for a release from teaching responsibilities for up to one semester following a birth or adoption for faculty members who are the primary caregiver for the child, and they also are eligible for a one-year extension of their tenure clocks
- The Provost has instituted a workshop for deans and associate deans to discuss in depth the university's performance in the area of recruitment and retention of women and minority faculty, and of the need to focus on and improve in this area. This renewed focus has yielded tangible results.

## Conclusion

We can no longer afford to operate according to the old status quo. If the United States truly wants to maintain its lead in the global scientific and engineering marketplace, then policies must be geared to attracting and retaining the best and brightest – regardless of whether they are male or female.

The fact that women are capable of contributing to the nation's scientific and engineering enterprise, but are impeded from doing so because of gender and racial/ethnic bias and outmoded "rules" governing academic success is deeply troubling and embarrassing. It also must be a call to action. All of us – faculty, university leaders, professional and scientific societies, federal agencies and the federal government – must unite to ensure that all our nation's people are welcomed and encouraged to excel in science and engineering in our research universities. Our nation's future depends on it.

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### Working Data for University of Miami Scorecard

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**D1** – Formal Mentoring Programs for:

- Undergraduates – no
- Graduate Students – no
- Postdoctoral Scholars – no
- Pre-tenure Faculty – no
- Tenured Faculty – no

**D2** – Provide management training or workshops with an integrated component that addresses gender, and ethnic and racial equity for:

- Undergraduates – no; informal through student groups
- Graduate Students – no
- Postdoctoral Scholars – no
- Pre-tenure Faculty – no
- Tenured Faculty – no
- Department Chairs – yes
- Search Committee Chairs – no
- At our most recent academic leadership workshop the Provost spoke at length with supporting data on the university's performance in the area of recruitment and retention of women and minority faculty, and of the need to focus on this area

**D3** – Is there a university-wide grievance policy? – No, but we have separate policies that deal with faculty, students and staff

**D4** – Does the grievance policy apply to:

- Undergraduates – yes, please see:  
<http://www6.miami.edu/umbulletin/info/serv/ombuds.htm>
- Graduate Students – yes, please see:  
<http://www6.miami.edu/umbulletin/info/serv/ombuds.htm>
- Postdoctoral Scholars – yes, please see:  
[http://www6.miami.edu/UMH/CDA/UMH\\_Main/1,1770,13610-1;14550-3,00.html](http://www6.miami.edu/UMH/CDA/UMH_Main/1,1770,13610-1;14550-3,00.html)

- Pre-tenure Faculty – yes, please see Section B4.10:  
<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>
- Tenured Faculty – yes, please see Section B4.10:  
<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>

**D5** – Is there an office or person designated to grievances? Yes; Vice Provost for Faculty Affairs

**D6** – To whom/what are sexual harassment cases brought? Vice Provost for Faculty Affairs

**D7** – What percentage of sexual harassment cases were forwarded for action? 100%

**D8** – Does the university have a central, written policy and budget to allow part-time appointments for faculty:

- Tenure-track – no
- Tenured – no

**D9** – Does the university have a university-wide written policy and budget to allow temporary relief from teaching or other modifications of duties with no reduction in pay for faculty:

- Family care – yes, please see Section C17.7:  
<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>
- Personal disability – no written policy; handled collegially

**D10** – Does the university have university-wide written policies providing full or partial replacement pay:

- For new biological mothers during leaves for disability related to pregnancy and childbirth during the academic year – yes, please see Section C17.7:  
<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>
- For adoptive mothers – yes, please see Section C17.7:  
<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>
- For biological fathers – yes, please see Section C17.7:  
<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>
- For adoptive fathers – yes, please see Section C17.7:  
<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>
- For unmarried partners – yes, please see Section C17.7:

<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>

**D11** – Does the university have a formal pregnancy leave policy for:

- Undergraduates – no
- Graduate Students – no
- Postdoctoral Scholars – yes, please see:

[http://www6.miami.edu/UMH/CDA/UMH\\_Main/1,1770,13610-1;14652-3,00.html](http://www6.miami.edu/UMH/CDA/UMH_Main/1,1770,13610-1;14652-3,00.html)

- Pre-tenure Faculty – yes, please see Section C17.7:

<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>

- Tenured Faculty – yes, please see Section C17.7:

<https://www6.miami.edu/faculty-senate/FACULTYMANUAL07-08/FacultyManualFall2007-08.doc>

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Donna E. Shalala, president of the University of Miami and former secretary of health in the Clinton administration, chaired a committee of the National Academies that wrote the 2007 report *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*. The report is available on-line at [http://www.nap.edu/catalog.php?record\\_id=11741](http://www.nap.edu/catalog.php?record_id=11741).