



Advancing Women in Science and Engineering:

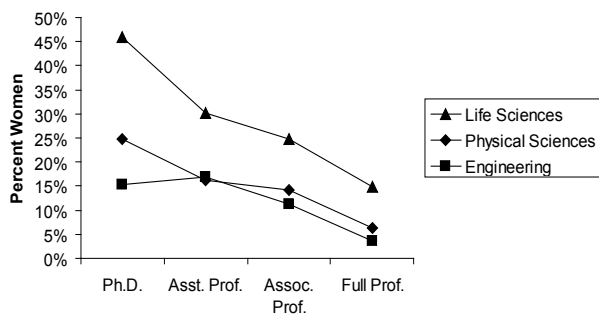
Advice to the Top

**Top 10 Tips for Academic Leaders
to Accelerate the Advancement of
Women in Science and Engineering**

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Women have made substantial advances in the sciences, engineering, and medicine in the past 30 years. The number and proportion of women who receive bachelor's, master's, and doctoral degrees in science and engineering has grown substantially. Despite these advances, academic institutions are not fully utilizing the pool of women scientists they produce. The difference between the proportions of women who earn PhDs and those who hold faculty positions at top universities is clear (see below). The underrepresentation of women in faculty and leadership positions does not result from lack of talent or ability, but rather from unconscious bias or assumptions and from institutional structures, policies, practices, cultures, and climates that have differential influences on men and women faculty. Consequently, institutional change and increased awareness of the bias and assumptions women face can have a significant impact on the advancement of women in science, engineering, and medicine.¹

The power a leader can exert is an essential tool for influencing institutional change. That power alone can rarely dictate policy or actions, but a great leader can pave the way for other members of the academic community to develop and advance specific actions and policies. The environment into which these change agents introduce ideas will

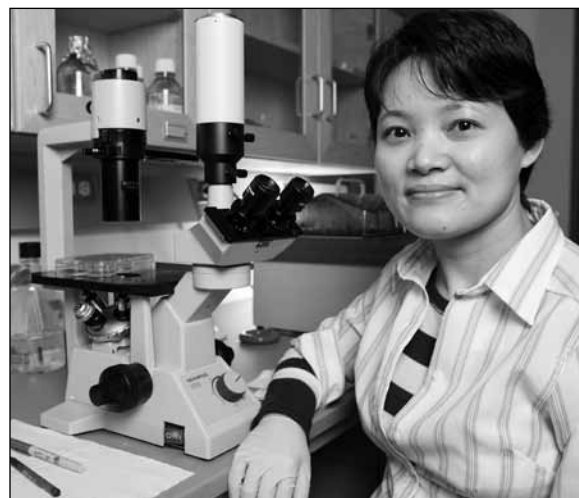


Percent Female PhDs and Faculty Top 50 Departments in Selected Disciplines²

determine their success or failure. A campus leader can ensure success by carefully laying the groundwork. The following recommended actions aim to help leaders create a receptive environment so that committees, task forces, and other bodies of faculty and staff working to achieve gender equity can succeed.

TIP #1: LEARN ABOUT OUTSTANDING WOMEN ON YOUR CAMPUS

Meet with women students, scientific staff, and faculty members in diverse venues. Have monthly luncheons with small groups of women faculty, visit the labs and classrooms of women scientists, and consult women who may be left out of informal networks on issues of importance to the campus. Create your own opportunities for interaction by initiating new informal networks that are more likely to include women. Seek out women of color who may be even more isolated than white women.



TIP #2: LEARN FROM THE LOCAL EXPERTS ABOUT GENDER ISSUES

Identify ten women on your campus whose science you highly respect. Ask them for their insights into the most prevalent challenges facing women scientists on your campus. Ask them what is needed to redress the issues.

Attempt to hear from a diverse group of women, including those of different viewpoints, disciplines, age, and/or race.

TIP #3: REVIEW CAMPUS DATA ON EQUITY

Have your campus collect data on equity and study it. Ensure that pay, space, teaching assignments, desirable appointments, and other critical resources are fairly distributed. Make it well-known that you conduct such reviews and hold units accountable for addressing inequities.

TIP #4: STUDY WORK/LIFE ISSUES

Once the campus identifies ways to accommodate the interface between professional and personal life, champion one or more of the solutions. These might include:

- ❑ Personally oversee the design of campus childcare facilities, lactation rooms, or housing for students who are single mothers.
- ❑ Give a personal donation to a fund to support a new childcare facility on campus.
- ❑ Visibly support the right of women to have both careers and children by advocating policies for tenure clock extensions and parental leave.
- ❑ Ensure that mandatory meetings are not held outside of the hours during which childcare is available.
- ❑ Provide childcare at campus events.
- ❑ Make clear to your campus community that policies designed to alleviate the pressures differentially shouldered by women are not “special treatment” but create a better workplace for men as well as women.
- ❑ Assert that childbearing and caring for young children only last a few years and you invest in a lifelong career.
- ❑ Point out that women are not the only ones who take time away from work for personal commitments – most of us suffer some loss of time at work at some point in our careers due to death of family members, accidental injury, prostate cancer, heart disease and many other causes.



TIP #5: MAKE GENDER ISSUES VISIBLE

Insert issues of equity and inclusion into discussions of other topics; make it clear to your campus community that gender issues affect everything that happens on campus. Be prepared to deliver certain strong messages that are appropriate to the campus. In the right context, some of the messages that may need to be stated repeatedly, especially by men, might include:

- ❑ The current status of women is not acceptable.
- ❑ It is the responsibility of the entire campus community to solve the problem.
- ❑ The problem is not the women, it is the institution.
- ❑ The climate for women on campus is not as good as it is for men.
- ❑ Poor climate reduces productivity and creativity.
- ❑ Men are typically poor judges of the climate experienced by women.
- ❑ Diversity enhances the value of any institution by increasing creativity and problem-solving.

- ❑ Hiring more women does not mean sacrificing quality.
- ❑ Society and our universities need women who combine outstanding science and family life.
- ❑ Unconscious biases and assumptions are universal and need to be countered in all evaluations of women.
- ❑ The campus has a zero tolerance for illegal actions such as sexual harassment, discrimination, and retaliation against those who raise these issues.

Study the research that supports each of these assertions and use the data to convince colleagues that in an evidence-driven decision-making environment, you must address areas in which the evidence indicates that the university could improve to better serve all members of the community.

TIP #6: INCREASE THE VISIBILITY OF OUTSTANDING WOMEN SCIENTISTS

Use opportunities in speeches, interactions with the press, and discussions with other faculty to highlight the accomplishments of women scientists. Appoint women to important committees and positions. Ensure that your campus press covers women's accomplishments. Research shows that people respond more negatively to self-promotion by women than by men, so you may need to work harder to find out about women's accomplishments. Keep a list of women faculty handy with notes about their specialties so that you are ready with suggestions when asked about nominations or appointments. Support the promotion of women to positions of power and prestige by ensuring that women are presented as leaders, scientists, researchers, and powerful intellects – not exclusively as students, followers, teachers, nurturers, and nice people. This helps avoid reinforcing implicit assumptions that men occupy positions of high authority while women occupy subordinate positions.



TIP #7: SUPPORT COMMITTEES AND TASK FORCES

Committees or task forces charged with addressing gender equity will likely initiate most of the institutional change on your campus. Maximize their effectiveness by staying in close contact with them, providing resources, supporting proposed initiatives, and taking ownership of their recommendations. Use these bodies to generate strategies and solutions, but don't expect them to take the lead on implementation. Give credit to the task forces for the ideas to show that the recommendations are from the community, not top-down mandates. Give this credit broadly to groups and committees, not just to their chairs, thus enfranchising all contributors in the process. Then take full ownership of implementing the recommended changes, while continuing to remind the community that these are not your ideas, but that you are fully supportive of them. For initiatives that are managed centrally, provide leadership from the highest offices of the university to signal to the community that you consider these initiatives important.

TIP #8: ASK HARD QUESTIONS AND TAKE TOUGH STANDS

Regularly question the people who report to you and expect them to provide concrete answers. These include:

- ❑ Which women in your unit are most likely to be recruited elsewhere?
- ❑ What are you doing to preempt such losses?
- ❑ What mechanisms do you use to ensure equitable distribution of resources?
- ❑ How do you ensure that searches to fill new positions are broad and inclusive?
- ❑ What have you done to recruit more women to your faculty?

Be ready to take hard positions if the answers are unacceptable. Get the community's attention and let them know that gender equity is a priority by terminating searches that do not generate short lists that reflect the composition of the national pool, or refuse positions or resources to departments that have poor climates and retention records for women.



TIP #9: INCORPORATE GENDER EQUITY IN CAMPUS PLANNING

Explicitly make gender equity issues a basis on which to evaluate those who report to you. Hold your subordinates accountable for decisions that affect gender equity. Make gender equity part of the value statement and strategic plan for your university. Ensure that those who participate in gender equity efforts receive recognition and reinforcement for their work.

TIP #10: BE RECEPTIVE WHEN PRESENTED WITH GENDER ISSUES

Make it known that you are open to hearing directly from people concerned about gender issues. Respond and take action, if necessary. Even if you don't believe an allegation or agree with a conclusion about bias, show respect for the person and concern for the situation. Protect those who raise concerns about gender from retaliation for their actions. You cannot create an entirely equitable campus, but you can create a climate that supports open debate without retribution to those of a minority view or class.



REFERENCES AND PHOTO CREDITS

1. National Academy of Sciences, *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering* (Washington, DC: National Academies Press, 2007); Jo Handelsman, et al., "More Women in Science," *Science* 309; 5738 (August 2005):1190-1191.

2. This graphs represents the PhD data for 2001-2003 for the same "top 50" institutions as faculty positions in each discipline. Faculty data are from 2002 except Astronomy (2004) and Chemistry (2003). The "Top 50" departments are ranked by NSF according to research expenditures in that discipline. The source of the faculty data is: "Nelson Diversity Surveys" Donna J. Nelson, Diversity in Science Association: Norman, OK, 2004; <http://cheminfo.chem.ou.edu/~djn/diversity/top50.html>. The source of the PhD data is: NSF Survey of Earned Doctorates/Doctorate Records File. WebCASPAR, <http://webcaspar.nsf.gov>.

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