

Encouraging more women in science and technology

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Specific strategies to overcome bias

In order to remain technologically and scientifically competitive in an increasingly global society, the United States needs all the brainpower it has. Currently however, a significant brain drain is taking place as bias has created a significant barrier to women and under-represented groups from pursuing technological or scientific careers, according to the upcoming paper "More Women in Science," which will appear in the August 19, 2005 issue of the journal *Science*.

"We need to encourage people, not discourage them, from pursuing studies and careers in the sciences," says Sue Rosser, dean of the Ivan Allen College of Liberal Arts at Georgia Tech and co-author of "More Women in Science." "The issue is not the innate ability of men versus women, but the social climate factors which over time have been shown to turn away women and other under-represented groups."

The paper pulls together a large body of evidence of barriers throughout the faculty pipeline process and provides specific strategies to address these problems. In some disciplines, such as computer science and engineering, the low number of women faculty is partly attributable to the low number of women trained in those fields. However, for many fields, such as biology, the balance of men and women faculty is quite uneven despite the fact that women make up almost half of their graduating Ph.D.s (see table). This disparity indicates that strong women scientists may not pursue academic careers due to lack of

encouragement, lack of confidence, or lack of female role models. To counter this problem, women Ph.D.s need to be explicitly encouraged to enter academia and programs such as professional societies, which provide role models and inspire self-confidence.

Further along the pipeline, evidence shows that women faculty members are more often asked to provide campus service on committees and as student advisers, not necessarily the best activity to win tenure approval in Research I institutions. To assist junior faculty in managing their pre-tenure activities, Georgia Tech ADVANCE Professor Jane Ammons in the College of Engineering developed a "speed mentoring" workshop in which junior faculty consult with four to five tenured case reviewers who examine their curriculum vitae and offer suggestions on how to strengthen their tenure case. Speed mentoring has been used on a campus-wide basis at Georgia Tech as well.

Unconscious bias is another barrier to increasing female faculty numbers. To address this often rather subtle factor, Georgia Tech developed a Web-based tool kit called Awareness of Decisions in Evaluating Promotion and Tenure (ADEPT) as part of a National Science Foundation (NSF) ADVANCE Institutional Transformation Program grant. ADEPT is designed to help promotion and tenure committee members, chairs and deans to better understand biases related to gender, race and disability. ADEPT includes a variety of downloadable applications that include case studies, scholarly research, an interactive game and other materials to provoke discussion.

The paper also outlines concerns regarding campus climate and the issues of balancing family and work with specific examples of problems and specific strategies used at various institutions to overcome them.

Several of the authors, including Rosser, are recipients of the prestigious National Science Foundation ADVANCE Institutional Transformation

Program grants. The other authors include lead author Jo Handelsman of the University of Wisconsin-Madison; Nancy Cantor, chancellor and president of Syracuse University; Molly Carnes of the University of Wisconsin-Madison; Denice Denton, chancellor of the University of California, Santa Cruz; Eve Fine of the University of Wisconsin-Madison; Barbara Grosz of Harvard University; Virginia Hinshaw of the University of California, Davis; Cora Marrett of the University of Wisconsin System; Donna Shalala, president of the University of Miami; and Jennifer Sheridan of the University System of Wisconsin-Madison.

Source: Georgia Institute of Technology

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