WISTEM PRO² WHITE PAPER: FALL 2016

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In the global economy of the 21st century, the need for professionals skilled in science, technology, engineering, and mathematics (STEM) continues to grow. If the United States is to remain competitive in this economy, there is an urgent need to improve and expand the STEM education-to-career pipeline to meet the workforce needs of our nation.^{1,2} A key strategy for growing the STEM workforce is to broaden participation in STEM among underrepresented groups, including women. While women compose about half of the total U.S. population and represent half of both the overall and the college-educated workforce, they represent only about a quarter of the overall STEM workforce.³

One of the ways in which the STEM workforce can be defined is by the number of people holding STEM degrees,⁴ and the gender gap in the number of degrees awarded varies widely across STEM fields. While women earn approximately half of all undergraduate STEM degrees awarded in the U.S., they are overrepresented in psychology (76.7%), biological sciences (59.1%), social sciences (54.6%), and agricultural sciences (53.9%), and they are underrepresented in mathematics and statistics (42.8%), the physical sciences (39.7%), earth/atmospheric/ocean sciences (38.6%), engineering (19.8%), and computer science (18.1%). Overall, women earn fewer graduate degrees in the STEM disciplines than their male counterparts, with less than half of STEM master's degrees (46%) and doctoral degrees (41%) awarded to women. The pattern of over- and underrepresentation of women by STEM discipline generally persists at the master's and doctoral levels. For example, women earn nearly three-quarters (73.5%) of doctoral degrees in psychology and less than a quarter of the doctoral degrees in engineering (22.8%) and computer science (20.8%).

A variety of social and environmental factors have been shown to contribute to women's underrepresentation in some STEM disciplines. For example, negative stereotypes about girls' cognitive abilities in mathematics are associated with decreased learning and interest in STEM disciplines that require quantitative skills, and even when such stereotypes are consciously rejected, implicit cultural biases about women in STEM often remain. Thus, even those girls and women who demonstrate ability and interest in the STEM disciplines often encounter implicit biases—both in themselves and among their peers and colleagues—that undermine their persistence and participation in the STEM disciplines.⁵

Indicators of potential implicit bias in the workplace include gaps in pay and advancement between women and men of similar education, experience, and abilities. Studies of the gender pay gap in the U.S. show that, overall, women are paid less than men for the same work. A recent analysis of median annual earnings in 201g4c -4 (1)] TJET Q 0.24 0 0 0.24 448.3070.23(1(0.0-1 (s) 17 (a) Tm /TT1 1 T1 Tf4 () 6 (t) 6 (h)-1 (r) :

The NCSES data also show that, since 1993, the number of women with science, engineering, and health doctorates who are employed as full professors in academic institutions has more than doubled. Despite this increase, women only occupy about one-fourth of senior faculty positions—

administrators on issues that relate to women students, faculty, and staff at UNO. The CCSW offers networking events, scholarships, and awards.

• UNO Women's Club—This organization provides opportunities for social interactions among women connected to UNO and raises funds to support scholarships for non-traditional students attending UNO.

Organizations also exist to support recruitment and retention of female students in the STEM disciplines, as follows:

Women in IT Initiative—The Women in IT Initiative is part of a community-driven task force designed to recruit and retain women in UNO's College of Information Science and Technology programs. The group's goal is to help address the IT workforce deficit and create a diverse IT talent pool. Group activities include a mentorship program for IS&T female students, participation in nationally recognized conferences and activities, support for the UNO chapter of the Association for Computing Machinery-Women Student Chapter, and an immersion experience for middle and high school students. The group's endowment will also fund schola7 (t 90 6 0 0(7 2 (p) 2 (s) 3 nf)-1 (o) 2 (7 (t ()-317 (t ST) -3 & T) 7 (T) 4 ()-3 (u) 2 (n) 2 (d) -2(e) -1

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In the fall of 2015, a group of about 15 faculty and staff members representing various academic and nonacademic units at UNO began to gather monthly to discuss how best to support women in STEM roles at UNO. After reviewing the national literature about how best to support women in STEM, existing campus resources, and the goals articulated in the UNO STEM Strategic Plan, the group determined that there was a need to establish a formal group to coordinate existing efforts and expand programming focused on supporting women faculty and staff in the STEM disciplines. Using information from the GWIMS toolkit, this grassroots group established a new campus organization—WiSTEM Pro²—with WiSTEM standing for Women in Science, Technology, Engineering and Mathematics and Pro² Going forward, the committee will work with UNO leadership to ensure that campus-wide faculty satisfaction surveys include questions relevant to "sense of fit" and other dimensions of departmental climate that are particularly relevant to the satisfaction of women faculty and staff in STEM departments.

In fall of 2016, WiSTEM Pro²

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