New program to help women in STEM overcome gender discrimination

Catherine Cook-Cottone
Professor of Counseling, School and Educational Psychology

Expertise: yoga, mindfulness, embodied self-regulation, eating disorders, anxiety-based disorders

Phone: 716-645-1128
Email: cpccook@buffalo.edu

Graduate students working in UB's Environmental and Water Resources Engineering Laboratory. Credit: Douglas Levere, University at Buffalo.

Researchers to pioneer case study method to help students prepare for bias, inequity
BUFFALO, N.Y. — Co-workers say you’re too aggressive, and suggest you act more feminine.

Your boss continuously questions your work, but readily accepts the work of male counterparts.

Your PhD adviser suggests that your pregnancy is distracting you from finishing your thesis.

Many women pursuing careers in the science, technology, engineering and math (STEM) workforce face such scenarios. Yet they seldom receive instruction on how to best handle them.

The result? Women leave STEM jobs or are dissuaded from seeking leadership roles.

A novel educational program, called the NAVIGATE Project, under development by a University at Buffalo-led, multidisciplinary research team aims to counteract this trend. It will provide women graduate students with skills to recognize and overcome gender inequality, ultimately helping solve the gender gap in STEM fields in the United States and elsewhere.

“We’re great at teaching women science and engineering, but we’ve done a poor job equipping them with skills to overcome gender discrimination, bias and inequity,” says Liesl Folks, a principal investigator of the research team, and dean of UB’s School of Engineering and Applied Sciences.

The U.S. has made some progress addressing the gender gap in the STEM workforce. But problems persist. For example, women fill 47 percent of all U.S. jobs but only 24 percent of STEM jobs, according to the U.S. Census Bureau. And gender inequality has roiled Silicon Valley in recent years, from Ellen Pao’s highly publicized discrimination lawsuit to scandals involving Uber, Google and other tech giants.

The research team, which has received nearly $500,000 in National Science Foundation (NSF) grants, will address the problem by utilizing the case study teaching method, which presents content in a narrative format accompanied by questions and activities that promote group discussion and the solving of complex problems. Using the case study method in the classroom to develop problem-solving skills related to bias and discrimination will increase students’ confidence in dealing with real-world problems that they may encounter, either during their studies or in the workplace, Folks says.

For example, a group of students could be assigned a case that describes what it’s like to be a young female computer scientist who is continuously asked by her boss to join him for drinks after work. Because lessons are blended into compelling and relatable stories, students move beyond simply recalling knowledge to a much deeper understanding involving decision-making and analytical skills.

“The case study method allows students to work together and develop practical and strategic responses to scenarios. Our goal is not only for them to understand the complexity of barriers to women’s success and advancement in STEM workplaces but also learn the knowledge and skills needed to combat bias, discrimination, and inequities to persist in their fields,” says Coleen Carrigan, assistant professor of Anthropology in the Department of Social Sciences at California Polytechnic State University, also a principal investigator on the research team.

Researchers will create case studies based on lived experiences and then collect qualitative and quantitative data that evaluates how effective the cases are. The cases will be made available to the public through educational websites.

The team will benefit from UB’s expertise in the case study method, which has proven effective in business, law and other fields, but has not been studied as a tool to overcome gender inequality. UB is a host for the National Science Foundation’s National Center for Case Study Teaching in Science (NCCSTS), and Nancy Schiller, a co-principal investigator of the grants, is a co-director of the center.
Ultimately, the project aims to boost the number of women participating in the STEM workforce at all levels, and may be adopted for other underrepresented groups in the STEM workforce, Folks says.

Co-principal investigators (all from UB) include Glenna Bett, associate professor in the Department of Obstetrics and Gynecology in the Jacobs School of Medicine and Biomedical Sciences; Xiufeng Liu, professor in the Graduate School of Education; Nancy Schiller, engineering librarian in University Libraries; and Laurene Tumiel-Berhalter, associate professor in the Department of Family Medicine in the Jacobs School.

The research is supported by the NSF’s Innovations in Graduate Education program, which supports projects that pilot, test and validate innovative and potentially transformative ways to teach STEM.


### Media Contact Information

**Cory Nealon**  
Director of News Content  
*Engineering, Computer Science*  
Tel: 716-645-4614  
crnealon@buffalo.edu  
Twitter: @UBengineering