Mentoring and Teaching Students in STEM fields

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As a first-generation student, I earned a Bachelor's and Master's degree from the University of Windsor. While working on research as an undergraduate and graduate student, I had very strong women mentors. Drs. Lynda Corkum and Barbara Zielinski really helped shape me as a woman in STEM and instilled in me a love for teaching and scientific research. They were always willing to share experiences and strategies they used while working in a male-dominated field. The best thing for me as a budding woman scientist was for me to witness them navigate through research meetings, scientific conferences, colleague conflicts, student interactions and scientific writing. After being mentored by these fabulous women, I had a lot of self-confidence and believed that I could navigate through research science and teaching using the foundation they had given me and continuing to build on that during my Ph.D. and subsequent experiences.

Photo by Chokniti Khongchum:
https://www.pexels.com/photo/shallow-focus-photography-of-microscope-2280547/

Since becoming a faculty member at the University of Detroit Mercy in 2010, I have tried to incorporate some of the amazing mentoring I received during my scientific training and as an undergraduate student in STEM to my research and teaching. I have taught well over 2000 students about 20 different lecture, laboratory and research courses. Further, I mentored over 30 undergraduate students in my research lab, with over 20 of them being women. My pedagogy and mentoring, both in the classroom and laboratory, has really evolved over the past 12 years. What I have learned from mentors, colleagues, pedagogical training and experience is to really meet students where they are and always try to have an open dialogue, ensuring that all students know that I am approachable and authentic. Every student has a different story and many are facing struggles, whether it be that they are first-generation students and have no one at home that understands the challenges of STEM fields, being a single parent, having lost a parent or facing challenging medical diagnoses.

Being approachable, sharing personal experiences, and listening to the concerns of students

really helps alleviate some of the stress they may be enduring. While at Detroit Mercy, I have been fortunate to be part of the STEM Learning Community, which is supported by the National Institutes of Health ReBUILDetroit Grant. With support from the STEM Learning Community, I recently completed Association of College and University Educators (ACUE) training courses entitled “Creating an Inclusive and Supportive Learning Environment” and “Promoting Active Learning” and continue to gain pedagogical training and resources from guest speakers. Being a part of this important group has really expanded my understanding of diversity, equity and inclusion and has allowed me to be more supportive of my students.

Women in STEM fields can face challenges including lack of mentorship and confidence, unequal gender divisions in labor, difficulties getting promoted, decreased training opportunities, etc. Typically, in STEM degree programs, female students encounter more male professors than women. A lack of interaction with other female scientists may make female students feel like imposters. Sixty percent of the faculty members in Biology Department at the University of Detroit Mercy are women who have experienced many of the challenges listed above. Additionally, most of our male and female faculty members have received unconscious bias and undergraduate mentoring training. It is my goal to both encourage and mentor women in STEM field, during their undergraduate years and beyond.

I really want to ensure that I am leading by example, like my female mentors did. In the classroom, I highlight prominent women scientists, women who were not treated well in science and discuss what imposter syndrome is and how in leads to insecurities about scientific abilities, especially in women and minorities. In my research laboratory, I have mentored several undergraduate and graduate women. Like my female mentors, I try to introduce my students to many different situations. These include team building skills with diverse individuals, hypothesis testing, experimentation, data analysis and communication. Further, my students have the opportunity to present their research at national research conferences, such as the Society for Integrative and Comparative Biology (SICB) annual conference. Being at a national conference introduces the students in my lab to a diverse set of researchers from across the country. SICB also offers workshops on decolonizing science and on interpersonal skills building. At the conference, students can also see that researchers really do look like them and are able to listen to and ask questions of scientific researchers.

Overall, I characterize my pedagogy as constantly evolving, learning, changing and adapting. As a Professor, it is important for me to be a good listener, be considerate and to be a good model of what a woman in science looks like. Showing my students that failure is normal and to be expected, but that it is also an opportunity to grow, learn new skills or hone others while critically thinking and problem solving. I want to especially show my female students that women in science are strong voices and their voices matter.