

Inspiration to improve diversity in science and at UCSD

Growing up on the north side of Pittsburgh, one of the country's most integrated neighborhoods, and attending city public schools, has made me acutely aware of the problems underrepresented minorities face in our educational system. As a white student, I distinctly remember being favored over my black classmates, even in this integrated environment where racial favoritism should not exist. Likewise, I have seen teachers favor men over women, and I empathize with how frustrating this must be for women. Minorities and women face many obstacles in pursuit of education, and as faculty at UCSD I will help remove them.

My sincere interest in improving diversity in science was passed down from my father, who is a community organizer and activist for promoting Minority Women and Disadvantaged -owned Businesses (MWDB). Raymond Meyer is a purchasing manager for a municipal sewage treatment authority (ALCOSAN) where he has significantly improved their use of MWDB. During his management, service contracts given to MWDB have doubled and supply purchases from MWDB have increased ten-fold. Outside of work, he helped create Pittsburgh's Diversity Business Resource Center, is on the board of three other diversity-focused organizations, and has won five local awards for his MWDB outreach. Like me, my father was raised on the north side of Pittsburgh and has been inspired to improve MWDB because of his experiences living in this integrated community.

My interest in diversity in science is also related to my sexuality. As a gay man I can relate to other groups subjected to discrimination. I do not believe my sexual orientation has exposed me to the same discrimination felt by racial minorities and women, however it does help me understand the psychology of groups feeling discriminated against.

Overall, my experiences growing up in an integrated neighborhood, my father as a role model, and my very personal interest in diversity, have inspired me to work towards improving diversity and equity in science.

Past and current efforts to improve diversity in science

My most significant contribution to equity and diversity in science has been through mentoring four students: G [REDACTED], an undergraduate in biology, C [REDACTED], a Mexican American PhD student, A [REDACTED], a PhD student in evolutionary biology, and L [REDACTED], a Mexican Pakistani Native American PhD student. All four have promising careers in biology, in small part because of the work we have done together. For G [REDACTED] and C [REDACTED], I mentored their first research projects, from brainstorming to publication. For A [REDACTED] and L [REDACTED], I advised their PhD projects and am currently helping them publish their first papers in peer-reviewed journals. Helping these students develop research projects and seeing them through to publication has been incredibly rewarding. I hope that by publishing early in their careers they will be propelled to continue in science despite any discouragement they may have felt because of their gender or ethnicity.

Given the large number of women and minorities in my life, I did not expect to experience any special difficulties mentoring G■■■■, C■■■■, A■■■■, and L■■■■. However, this was naïve, there are, in fact, many issues that mentors of students of underrepresented groups need to consider. One example I did not anticipate was L■■■■'s resentment of minority-focused programs. L■■■■ fears his colleagues will attribute his success to his minority status and would prefer to not take advantage of these programs. Through many discussions between L■■■■ and I on the equity provided by these programs, L■■■■ feels much more secure in using minority-focused fellowships and programs and I believe is generally more comfortable with being a minority in science.

A■■■■ and I have had similar discussions about being a woman in a male-dominated field. The trickiest times for her are during conferences when social dynamics between men can be alienating to women. These discussions have helped me understand a dimension of discrimination that I had not contemplated before; discrimination that occurs through positive interactions between a set of colleagues, that reinforces a cultural image of the group and excludes others that are outside of the set. For instance, 'the old boy's club', where women feel excluded without any direct negative interactions, but because they do not feel included. While this is a well-known phenomenon that affects women, this understanding can be extended to many other situations. For instance, how might a very liberal, atheist professor interact differently with conservative Christian students than atheist students? And, how would this positive bias toward liberal students affect the education of conservative students and the overall diversity of ideas in science? I believe it is important to be as inclusive as possible in all situations.

Plans to increase diversity at UCSD

I will use my faculty position to break down barriers for women and minorities in science at many steps in their education:

1. Perform in-class science outreach to primary and secondary schools, principally to schools with a large Hispanic population like Hoover High School and High Tech High. My goal will be to educate, inspire, and provide an understanding of the benefits of education in the STEM fields.
2. Hiring undergraduates to work in my laboratory from local community colleges and other schools with high Hispanic enrollment, including National University.
3. Mentoring graduate students and postdocs who are women and/or minorities.

Out-reach to primary and secondary schools. As a Masters student, I designed and administered outreach exercises for young students. These included exercises that spanned topics between DNA-based experiments in the laboratory, to sampling species diversity in nature. I would like to continue developing these programs, specifically for schools in Hispanic communities. My brother works as a Senior Asset Manager 'developer' for the Port of San Diego, and works intimately with the Hispanic communities that border the industrial areas of the port. He has helped develop parks and educational centers on the port with the goal of building neighborhoods friendlier to families and more conducive to education. I would love the opportunity to team up with

him and other San Diego agencies to improve science education outreach in these communities.

Hiring undergraduates from schools with high Hispanic enrollment. I found my way into science through a work-study position in Nelson Hairston Jr.'s laboratory. Before this position I had no clue what practicing science was like, or even what a PhD meant. Nelson showed me the ropes and set me on this path. I believe the best way for me to encourage more women and minorities into science will be to open my laboratory doors and offer paid internships. I emphasize 'paid' so that poorer students, who must work while attending school, have an opportunity to work in my laboratory.

Recruiting and mentoring graduate students who are women and minorities. As faculty I will actively recruit students from schools with an elevated enrollment of under represented minorities. I hope to build connections to local schools that have large Hispanic populations. At the national scale, I intend on recruiting from traditionally African American schools like Howard and North Carolina A & T. During my PhD I worked with many students and faculty from A & T as apart of the BEACON Center for the Study of Evolution in Action. BEACON is an NSF center based at my PhD *alma mater*, Michigan State University, however it has sister groups at other schools including A & T. I will strengthen my connections to A & T in order to recruit talented students, as well as try and build connections to other historically African American schools.

My mentoring style will be inclusive and sensitive to cultural differences. One aspect of my mentoring that I have not discussed, but I think will be important to improve diversity, especially women's participation in science, will be to nurture students' desire to start families. I want to create an environment where no one feels that they must decide between family and science. I have a number of male and female friends who struggled with whether they could have children during their science training, and I want to make sure my students are not burden with having to make this choice.

Altogether, I feel deeply about improving diversity and equity in science and will make it a high priority as faculty at UCSD. I am encouraged by UCSD's commitment to equity and inclusion in higher education and I would like to be apart of this initiative. I believe we can improve diversity on campus, as well as develop and model programs for other universities to adopt.