

Q+A with Grace O'Connell

Grace O'Connell joined the Berkeley Engineering faculty in August 2013 as an assistant professor in the mechanical engineering department. She earned her Ph.D. from the University of Pennsylvania and was a post-doctoral researcher at Columbia. We asked her about her background and her first year at the college.



Matt Beardsley

When did you know you wanted to become an engineer?

I was always fiddling with things as a kid, and then I took an engineering class at my high school in Philadelphia. Both my parents were computer programmers, so that may have also influenced me. As a girl, I was definitely in the minority in my classes, but I was so focused on my studies, I wasn't even aware of it until I was a senior in college.

Why did you choose mechanical engineering in particular?

As an undergraduate, I originally studied aerospace engineering. In graduate school, I switched over to have a more direct impact on people's lives. My work is biologically based. I have colleagues in bioengineering departments at other schools who do similar research to mine. It all depends on how each university structures its departments.

Your research focuses on tissue engineering and spinal biomechanics. What are the applications of your work?

Around 80 percent of adults will experience back pain in their lifetime. I'm studying soft-tissue degeneration so we can grow a biological repair strategy. We use cells to grow new tissues in the

lab. We look at the mechanical function of native tissue to try to mimic this function in the repair tissue we create.

What has your introduction to the Berkeley campus been like?

I'm finding the culture here to be very open to collaboration and working across disciplines—there's a real generosity in sharing information. In the biomechanics group, for example, lab space is shared across multiple labs to encourage cross-talk and collaboration.

As an instructor in the Girls in Engineering camp in July, what was it like to be a role model for young women?

There's a big challenge ahead to balance the gender numbers in the engineering professions. Research indicates that girls are usually around middle school age when they become turned off to math and science. At the Girls in Engineering camp, I was excited to see how many of the campers dove right in, experimenting with tissue samples. In my own lab, I've tried to create a diverse workforce—it's currently a 60/40 male-to-female ratio. And because I'm half African, half American, I'm sensitive to racial diversity as well.



Matt Beardsley

STEM PIPELINE

Girls in Engineering

This summer, the college launched an outreach program for middle school girls designed to bring engineering to life and inspire the girls to pursue an education in STEM fields. Led by women faculty and graduate students, the camp was also designed to instill the confidence needed to master both the hard and soft skills required of engineering leaders. Offered free to students from five East Bay schools,

the summer camps were part of the college's commitment to increasing the ranks of women in technology. Research shows that by high school age, many girls have already dismissed the potential of careers in engineering.

Supported by grants from the National Science Foundation, General Electric and the Baskin Foundation, two weeklong sessions included hands-on projects in nanotechnology, robotics, optics and more, as well as field trips to nearby Pixar Animation Studios and Lawrence Hall of Science.