

# Career in focus: Science Education

This issue of the SPYglass focuses on careers in science education and outreach. Below you will find some general information on careers in this area along with a profile of Dr. Julia Zichello (pictured), the manager of the Sackler Educational Laboratory for Comparative Genomics and Human Origins at the American Museum of Natural History in New York. Dr. Zichello studied evolutionary biology and genetics in graduate school and received her Ph.D. from the City University of New York Graduate Center. Dr. Zichello talks about how she was able to make the transition from academia to her position at the museum, as well as a bit about what her life as a science educator is like.



## FAQs

### **What is science education?**

Science education spans a wide range of jobs united by the common objective of educating the general public about science. Most jobs require teaching science in primary and secondary schools or coordinating programs at educational institutions like museums or zoos. Traditional classroom science teaching involves preparing and delivering lessons, and there are set requirements that qualify you for these jobs. In contrast, coordinating programs at places like museums might involve a mix of developing curricula, running after school science enrichment programs, planning public lectures, or contributing to the curation of exhibits. Some other jobs include science tutoring, developing content for educational websites or other media, and training teachers in scientific topics. Many of these positions do not require a specific background and are filled by people with training in diverse areas from research to communications to teaching.

### **Why consider science education?**

If you love learning about and discussing science, but aren't as enamored with bench work, grant writing, or other duties of research, science education could be a good career option. If you prefer being around people to the more solitary life in the lab, and if you value community involvement and directly making a difference in people's lives, you might find science education more fulfilling than other careers. Finally, while many K-12 science teachers may work long hours, other science education positions might offer a better work-life balance than standard research positions.

### **What kinds of skills are needed to be successful at science education?**

Science educators need to be enthusiastic about science and, even more importantly, enjoy sharing their fascination with others. You should of course have a solid science background, but, it's worth noting that in this field, broad knowledge of science trumps in-depth knowledge of a certain area. Science educators must have excellent communication skills, interpersonal skills, and patience. A large part of some science education jobs involves coordinating events from small to large, so basic event planning skills are helpful. Finally, many science educators work primarily with children, so having an idea about how to most effectively interact with children of different ages is also important.

### **What kinds of activities can you do now to get experience in science education?**

There are many opportunities to gain experience in science education. Common volunteer opportunities include judging local science fairs; giving lessons at public schools, museums, or libraries; or helping to coordinate regional science festivals. You can also mentor high school students or undergraduates. Alternatively, you might try auditing or taking an education or communications course. It's also advised to become an engaged and attentive consumer of popular science media to learn how science can be effectively communicated to a broad audience.

### **Opportunities at Yale:**

[Yale Science Outreach](#) - Yale Science Outreach runs the New Haven Science Fair and many other programs. Click on the "Students" link in the left column to find out about getting involved in a way that matches your interests.

[Yale Science Diplomats](#) - YSD runs a variety of outreach programs, from Science in the News, a lecture series given by Yale students and postdocs at the Public Library, to interactive lessons in high schools around New Haven.

[Yale Peabody Museum](#) - If you are interested in museum work, you are lucky to be at a school with a top notch science museum right here on campus. Opportunities include leading tours and working shifts in the Discovery Room.

[New Haven International Festival of Arts & Ideas](#) - New Haven's annual summer festival includes science-related programming. Volunteering offers an excellent chance to get education and outreach-related event planning experience.

Other Useful Resources: [Science Careers Blog](#), [NIH Career Blog](#), [NIH Training Workshop](#), [NSTA](#)

## Interview with Dr. Julia Zichello, Ph.D.

*Manager, Sackler Educational Laboratory for Comparative Genomics and Human Origins  
American Museum of Natural History, New York, NY*

### ***How did you get interested in science education?***

During graduate school I was craving a more engaged audience and professional growth, so I volunteered with the New York Academy of Sciences as a STEM mentor. I worked with middle school students teaching genetics in an informal after-school format. It was a huge challenge, and I learned a lot about how different age groups and demographics view science and the role it has in their lives. The students were much more savvy than I anticipated, given our information-laden world. I enjoyed addressing various permutations of the question “Why does this matter?” ([NYAS Stem Mentoring Program](#))

### ***What was your path from science grad student to science educator?***

After being a STEM mentor, I worked part-time in the Sackler Educational Lab at the American Museum of Natural History (AMNH) teaching human evolution and genetics to high school students and the public. When I was close to finishing graduate school, a full-time position opened as manager of the lab - this is my current position. Talking to the public about human evolution at the AMNH helped me maintain enthusiasm about the topic, even when grad school got me down, which was often.

### ***What did you do while you were still a student to explore science education and better position yourself to move into that career?***

Throughout the last three years of graduate school, I taught middle and high school students about genetics and evolution. I also started a blog on the Nature network to begin to refine my popular science writing skills.

### ***What was the most challenging part about your transition?***

I have been finished with my PhD for nearly a year, and now that I am on the education side, I am sometimes not viewed as a scientist anymore. This is difficult, but not insurmountable. I hope with time I can publish academically and continue to serve in my education position.

### ***What is a typical day like for you now?***

Teaching middle and high school students, answering emails, and attending meetings about current and new creative projects at AMNH. The pace feels very different than graduate school, which is a good fit for me.

### ***What were the most important skills, different than those you used as a grad student, that you had to develop for your current career?***

The most important skill is to learn to clarify complex concepts but not minimize them to the point where they lose depth. Another imperative interpersonal skill is to use your knowledge to engage, not alienate, your audience. You cannot interest people in science by making them feel inferior or ignorant. The competitive culture of graduate school can sometimes work in opposition to developing these two traits, although it need not.

### ***How do you “sell” your research background?***

My PhD is in Physical Anthropology. I studied human and primate evolution. My dissertation was focused narrowly on a topic that is not accessible (or interesting) to someone outside of the field. Instead of saying I studied how population history influenced intraspecific cranial variation, I say I studied the evolution of primate skull shape. Also, at AMNH I am called upon to contribute to projects on a vast array of topics—from viruses to dinosaurs—this is fun, challenging, and sometimes scary. Given my interests now, and how I plan to develop as a scientist, I find it makes more sense to be recognized as an “Evolutionary Biologist”, which is more broad than “Physical Anthropologist.”

### ***What are your most and least favorite parts of your job now?***

My most favorite part is brainstorming about creative ways to communicate novel and complex scientific concepts. My least favorite is telling so many interested people that we don’t have a position for them at AMNH at the moment.

### ***What advice would you give to someone looking to transition from science to science education in a role like the one you have?***

Do as much as you can during graduate school. Many volunteer opportunities exist for developing informal science communication experience. Also, writing for the public understanding of science is a good exercise for any graduate student to learn how to clarify and communicate their ideas. It is very easy to start a blog, just be sure your internet presence always remains professional and of the highest quality of research and writing.

**Thank you for reading!!**

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