"At NIH, There Are Many Tasks and Operations That Need to Be Done or Grants Would Not Be Reviewed or Awarded"

Crystal L. Lantz

Abstract In our interview with Crystal Lantz, she shares her journey from studying visual system development to becoming a science advisor at the NIH BRAIN Initiative. Initially only considering academia, Crystal realized through peers' examples that other options existed. She values supporting impactful research and an engaging team. Crystal continues applying project management, scientific expertise, speaking, and analytical skills from her PhD. She retains passion for neuroscience and enjoys some flexibility in choosing projects. Crystal encourages informational interviews and exploring interests with outreach or policy. She considered tenure track jobs but ultimately prioritized work-life balance. Crystal advises casting a wide net career-wise and giving yourself time to reflect on what's important.

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Chris: Can you introduce yourself and tell me a bit about your current osition?

Crystal: I am a Science Advisor for Programs in the Office of the BRAIN Director (OBD) at the National Institutes of Health (NIH). The NIH is a U.S. government agency within the Department of Health and Human Services. It is a biomedical research center made of 27 institutes and centers that both support and perform scientific research.

In my current position, I work for the Director of the BRAIN Initiative, Dr. John Ngai, along with my other OBD and NIH colleagues to plan our scientific programs, as well as develop funding plans. I also work on shaping and growing BRAIN Initiative policies such as Data Sharing and the Plan for Enhancing Diverse Perspectives. My work on these involves using data analytics to examine our portfolio of funded projects, people and institutions to inform our future planning.

What was the focus of your PhD?

My Ph.D. is in neuroscience. It was at Virginia Commonwealth University, in the Department of Anatomy and Neurobiology, in the lab of Dr. Alexandre Medina. As a part of this work, I developed a mouse model of fetal alcohol spectrum disorders. Using this model, I studied the effects of early alcohol exposure on the visual system and how alcohol can disrupt plasticity seen in the critical period for visual cortex development. I graduated in 2012.

As you were finishing your PhD, what were you thinking about your career plans?

When I was finishing my PhD, the only next step I was thinking about was a post-doctoral position, and how best to become a tenure track professor. I have always held a wide variety of interests (scientific outreach, 3D printing, sewing), but at the time the other pathways available to me were not quite as clear. It was not until several years into my postdoctoral position, when I saw my friends and colleagues moving into roles outside academia, I 'realized' there was a world of options outside of academia.

Did you apply for tenure-track professor jobs? How did you decide to go outside of academia instead?

Yes, I applied for tenure track jobs in the 2019–2020 academic year. I got a handful of interviews, along with a few offers that came in as the pandemic started. Although they were good offers, from good institutions that I would have been happy to work at, I began to reassess what I wanted out of my life and career. After many discussions with my partner and late nights mulling over options, I didn't think that the academic path was the one for me. I truly felt like I could do more good for the world and science in a different role than running my own lab. Working in the Extramural side of the NIH seemed like a good fit, where I could help support excellent research and foster the next generation of scientists, while maintaining a reasonable work-life balance.

How have your career plans changed as you've continued on to your current position?

Before applying to positions at the NIH I had only heard of two jobs scientists could have in the extramural environment, Program Officer (PO) or Scientific Review Officer (SRO). It's been eye opening to learn of all the different roles people with scientific backgrounds have within the NIH.

There are positions in policy, operations, and communications, just to name a few. When I first started at NIH I was hired as a Health Programs Specialist, a position that can mean many things. In this role, I predominately assisted POs with analysis and administration of grant applications and awards. After my first year as a Specialist I was offered my current role, and I leapt at the chance to be more involved in programmatic planning and operations as a part of the NIH BRAIN

Initiative. At this moment I don't know where I will go next, but I envision it at the NIH. My working environment is incredibly supportive and allows me to use the skills I developed in my PhD and postdoctoral work, as well as think critically about neuroscience past, present and future. It's certainly a very different role than I envisioned, as a tenure track professor, when I finished my PhD but I am thankful I found it.

Can you tell us more about the BRAIN initiative and your role in it?

The BRAIN Initiative is a unique program formed in 2014. It comprises partners across multiple federal agencies, as well as non-federal partners. The NIH BRAIN Initiative, where I work, comprises efforts from 10 of the NIH Institutes and Centers (ICs) and is headed by The Office of the BRAIN Director, housed in the National Institute of Neurological Disorders and Stroke (NINDS), where I work. Our office is a small, nimble, team that works to coordinate all things BRAIN at the NIH. As a member of a small team I do a bit of everything, from assisting with programmatic review of grant applications to helping plan the BRAIN Initiative Annual Meeting. I serve as a Subject Matter Expert on steering groups for large projects and consortiums, plan and execute evaluations of our programs and policies, and generally help keep grant administration running smoothly. As a federal agency there are a lot of checks and balances to make sure that grant applications are reviewed fairly, paid out correctly, and that we are being good stewards of federal tax dollars. Coordinating all of these efforts between the 10 ICs that contribute to BRAIN can be a monumental task.

Can you tell us a bit about what day-to-day life is like in your current position?

Work in Extramural (research outside of NIH) NIH runs on 3 annual council rounds (application receipt, peer review, council, grant awards). Due to these cycles, each day is always different depending on the stage of the council round we are in, as well as what larger overarching projects I am currently working on.

Generally, I check emails in the morning, followed by a few meetings which can range from one-on-one check-ins with colleagues to larger programmatic review, or policy meetings. Between meetings I work on larger projects, whether that's helping plan a new funding announcement, organizing a workshop, writing code for a new portfolio analysis, or putting together guidance on policies. My day varies constantly.

What do you like most about your work?

I like knowing that the work I do makes a difference in the lives of scientists, patients and the public writ large. The NIH BRAIN Initiative funding, which facilitates this research, builds careers and leads to new treatments and cures. Playing my role in this is incredibly fulfilling. I also work with many incredible people, which makes every day at work better.

And what do you like least about your work?

Emails! I think I speak alongside many people when I say I get far too many emails, and responding to them takes up a large amount of my time. That said, I'd rather get emails than an equal number of phone calls, and people should never stop emailing me. I am always happy to help, in whatever way I can, those that reach out.

How do you think having a PhD has helped you succeed in your current position?

Absolutely. In my scientific training I learned how to manage multiple projects at once (with competing priorities), was able to hone my public speaking skills, learn to ask questions and design approaches to solve them. I use all the skills every day in my current position. Additionally, I often read and review the content of grant applications; all of the extensive neuroscience training I received helps me to better understand the why of proposals and how they fit within a broader landscape of neuroscience research.

If someone currently finishing their PhD was considering a position similar to yours, how might they decide if it would be a good fit?

I really encourage reaching out to people at the NIH that hold positions in Extramural for informational interviews. Many of the institutes that make up the NIH (such as NINDS, NIMH and others), have specific websites dedicated to hiring, with lists of open positions and the names of people to contact with questions. Contact those people and ask about the positions; ask about talking to someone currently in that position. If you're at a conference and there's an NIH booth, or you see an NIH employee around, ask to have a chat! I have gladly talked to many graduate students, postdocs and faculty members interested in working at the NIH and am

always willing to do more. It can seem daunting to reach out to people like this, but know that the vast majority of people are happy to help. That's why we work in public service.

If someone was interested in pursuing a similar career path, what would you suggest they do to better prepare themselves?

Keep focusing on your PhD, but think about ways to get involved outside of the lab. As a graduate student and a postdoc I volunteered with many neuroscience outreach activities in my community. This helped me gain the skills to talk about complex scientific topics to a variety of audiences. I also volunteered with policy outreach efforts on Capitol Hill, which exposed me to the laws and policies around how the NIH receives funding allocations from congress. Both of these skills helped me smoothly transition into my role at the NIH.

A lot of people like academia because they feel it gives them an opportunity to work on a topic that they deeply care about. Do you think this is also true in your current position?

Absolutely. I deeply care about scientific research as a means to better understand the world around us, as well as how it can be leveraged for better treatments and cures for disease. My work is tightly intertwined with both of these pursuits, via NIH-sponsored research that facilitates science across the US and world. I also love the brain and neuroscience (I would not have become a neuroscientist if I didn't) and I get to spend every day thinking about neuroscience research and its future.

Another reason many like academia is that they feel it provides them with more freedom than they think they would get in other positions. How much freedom do you feel you have to work on what you think is interesting?

I often wonder how much freedom exists within academia given the structures of universities. Working at NIH, there are many tasks and operations that need to be done or grants would not be reviewed or awarded. Our office works as a team to get things done, often passing tasks between us as we each have unique skills and talents. This allows me some flexibility when choosing the areas I work in, such as I enjoy working on analytics and policy, but I am not exceptionally skilled in communications. There are also many groups that cover a variety of topics from short-term funding announcement development to broader policy rollouts and

disease-specific areas. In my current role, I have the flexibility to work on the groups that I am the most passionate about and interested in, which gets me involved in a wide variety of areas, including things like workshop planning and conference hosting which I really enjoy.

Have you thought about returning to academia?

Not particularly. I think if the right type of position opened up I would consider it, but I enjoy the service aspect of my position, as well as the exposure I have to the breadth of research that is happening across the country. As a bench scientist, my view of the scientific world was relatively narrow as I focused solely on my own expertise and training. In my current role the ability to span a wider area is incredible. I've also found a healthier work-life balance where I am well supported and have the ability to truly check out of work in a way that I did not have in academia.

Based on your journey, what advice or suggestions do you want to pass on to someone who's currently finishing their PhD?

Cast a wide net. Do not be afraid to explore things that interest you. Give yourself time to breathe and to think about what is important to you. It's okay to not want to be a professor, it's also okay to want to be one. Talk to the people who have the jobs you're interested in, most individuals are happy to talk about themselves, and there is a lot you can learn about the opportunities that exist in the world when you start to ask questions.

Is there anything else you'd like to tell someone reading this interview?

When I left academia, I spent a lot of time thinking that I was a failure for not accepting a tenure track position. I think that feeling is completely normal. When we have been groomed from the first day of graduate school to think that a tenure track position is the ultimate goal of our studies, it is difficult to see the huge world of opportunities for scientists outside of academia. Every job has its positives and negatives, including those in academia. Finding joy and meaning in your work is at least in part about finding the balance that works for you, and just you.

Thank you for sharing your journey with us, Crystal!