

In Conversation with Indigenous undergraduate researcher K'sana Wood Lynes-Ford

Can you introduce yourself and tell us a little bit about what brought you to the University of Victoria to pursue a degree in chemistry?

My name is K'sana Wood-Lynes Ford. I'm from the 'Nāmgis, Gitxsan and Tsimshian First Nations. My name, K'sana, comes from the Ksan' River, also known as the Skeena River, which runs through traditional Gitxsan territory. My name translates loosely to Woman of The River. That is something I always like to share because I'm really proud of that, and I think it's really beautiful.

I came to UVic straight out of high school. I was a little bit undecided in sciences, but I had a feeling that I was interested in chemistry. I really enjoyed chemistry in high school, and for undergrad, it felt like out of all the sciences, chemistry would allow me to make sense of the world around me. For example, how does a microwave work, or why does salt make water boil slower? I think it's really exciting to be able to understand why that's happening. I really appreciate the problem-solving aspect of it, chemistry really encourages me to be a critical thinker, and I feel like I excelled in that aspect of the program.

As an Indigenous student living away from home, what challenges have you faced as a result of being away from your family and community? How have you navigated these challenges?

The hardest thing about coming to university and being away from home was the cultural shock. I grew up in a predominantly settler or non-Indigenous community. I wasn't able to live on my traditional territories, but I spent a lot of time there. So, coming to university was a culture shock because people were a lot more affluent than I was, and had come from families that were really comfortable in academic settings. It felt like I needed to learn a new language to succeed in this environment, and there were not many of people to show me what that looked like. My family has post-secondary education, but not in science. I had to navigate the new environment on my own, and there weren't other Indigenous science students that I could look up to.

I was able to adjust to living away from home with the help of Indigenous student supports. If those weren't accessible, my experience would have been a lot more difficult. Building a community within the First Peoples House really helped me. The supports for Indigenous students in the First Peoples House, and other Indigenous specific supports has grown immensely since I first started at UVic. Accessing the space, and community, made it a lot easier in those moments where I felt like an outsider and when I noticed a cultural differences between me and students in my lectures.

Do you have any mentors or role-models who have inspired you, or supported you on your academic journey?

Yeah. I'm really lucky that I have a really strong relationship with my mother. My mother Jessica Wood has been doing community-oriented work for a long time, and I think growing up I was really shown what it meant to be a community support.

My mom is someone who is at the top of her field. She led the UNDRIP legislation in BC, ahead of Canada, and she now works implementing the legislation and aligning other laws with UNDRIP.

To give context, even though she doesn't have a law degree, she has developed legislation that is now in BC, and has changed the lives of Indigenous people in this country and the world. She was able to do so because she is part of a community that works together.

I am really grateful to have a strong relationship with my family. When there were moments of self-doubt or moments of difficulty, I was able to look towards family members that had also experienced racism, or the loneliness that can come along with navigating colonial institutions. There were also staff at the First Peoples' House, including tutors, who really helped me navigate moments when I needed support. For example, when I needed help in passing a class, and I didn't have family members who had taken those courses before and was able to access free tutoring through the First Peoples' House. The Indigenous counsellors on campus have also made a huge difference for me. They helped me navigate difficult situations, and give me a safe space for self-growth, and self-reflection.

I want to empathise how important it is to ask for help. You can't do it alone. I think the university system is easiest for those who have a family system, with financial resources, and is familiar with navigating post-secondary education. If you don't have those things, it's really difficult. You need to make that community for yourself. I had some support from home, but I had to make a community here. I think without that community at UVic it would have been a lot more difficult for me, or even impossible to get through university.

What words of encouragement can you share with Indigenous undergraduate students who are considering chemistry, but may be feeling unsure, or worried that they cannot succeed?

I think science has a reputation for being really hard, which can be a deterrent for Indigenous students who want to pursue science. I think that school is hard no matter what you do. I am currently studying Chemistry and sometimes people think to be a chemist, you have to be really, really smart. But really, you just have to work hard. I will happily admit that I'm not the smartest person in the room, but I make up for it with tenacity and passion. Just because you get a bad test grade doesn't mean that you're not intelligent, it just means you need to find a different way to learn. Whether that means getting more support or finding friends who can help you, anybody can be good at science. Realistically, science is a skill like anything else that you have to learn, and everybody starts at the beginning. It's something that anybody can do.

I would also encourage students to have a well-rounded university experience because it makes you a better scientist. Entry level courses, teach you to think a certain way based on what other people have discovered. What makes you a better problem solver is having different and diverse experiences. So, I think everyone has something to contribute to science.

What is one of your proudest achievements in your degree so far?

This year, I was able to contribute to a publication about the [multigenerational impacts of long-QT syndrome](#) and carry on the legacy of another Gitksan woman who had passed away. We were able to publish the manuscript after her passing. This article was my first academic publication, and her last. I was really honoured to have contributed to the legacy of a person I look up to. I had never gotten the chance to meet her, but her legacy has impacted our community, and my career. The article has definitely been one of my proudest moments.

Can you tell us more about your experience in the co-op program, and the research you are currently doing?

I am currently completing a parallel co-op. I've done two co-ops with two different principal investigators, [Dr. Laura Arbour](#) and [Dr. Leigh Anne Swayne](#). It's changed a little bit over time, but essentially, I'm looking at different genetics and cardiovascular health in Northern Indigenous communities. There are genetic variants that are more predominant in the North, and we know that some of them are linked to heart and may also have a role in brain issues. My project has been trying to understand if there's a connection between those, and if having any of these variants mean you're more likely to have a fainting or seizure episode. Moving forward, I'll be looking at brain aneurysms and the connection between those and different genetic variants. Also understanding on the molecular level, Ankyrin-B, which is one of the proteins. When you have the Ankyrin-B variant, the protein is not encoded properly, and that can cause structural heart, and brain issues as well. I'm lucky that I get to work in a dry lab from a genetics point of view, looking at it at a population level, and also in a wet lab looking at it at the cellular level.

What motivates you and inspires you in your research?

The project that I'm a part of is the Long QT study, which has been able to identify different variants that are present in the community, and through that they're also able to help people understand. One of the variants, KCNQ1 p.V205M, is known as a pathogenic variant. When you have this variant, you have a really high chance of developing Long QT syndrome, and that causes part of the heartbeat to be too long, which can cause heart rhythm problems. But this same variant not only affects the heart but also has effects on other parts of the body, such as how insulin is released. This issue directly impacts my community. I know people that carry these variants and that are impacted by this research. So, I'm not only doing it for my community, but also to highlight the importance of Indigenous research being lead by Indigenous people.

The research that I do is based on a protocol called [DNA On Loan](#). All of the genetic samples that were ever collected belong to the community, and they get to determine what happens to their DNA. Our research is a partnership led by the Gitksan First Nation. We don't get to tell them what they need to study or what they need to know about themselves. They tell us. They are the experts in their own health issues. I have been in other scientific projects where it has not been the same level of partnership. I really believe in the way that we are carrying out this work. I really feel like I was meant to be at this place in time to contribute to this work.

What advice can you share with undergraduate Indigenous chemistry students who want to get involved in research?

I think that one thing that a lot of people don't know is like a lot of the way you get into research is either through connections, which you don't necessarily have if you're from the same background that I have. I didn't have any research connections, and I just knew that I was interested in research. The first summer that I worked in the lab, I got a grant for my summer job position. I emailed the principal investigator, Dr. Leigh Anne Swayne, who was on the contact list for the grant, and said "Hey, this is my background, and I am really interested in this. Do you know anyone who would be willing to work with me? Do you know about the program, could you tell me about it?". She connected me from there.

Most of the other people that I've worked with, if you're not applying directly to a job posting, cold emails, it feels awkward to just reach out and say, hi, this is who I am, please hire me. That's usually the way that people get in, is to ask. I think that kind of vulnerability can feel awkward. It can feel awkward to make that connection, to bridge the gap. I definitely encourage people who are interested in research to look up research that is happening in their community or their school and see if there is a way for you to be a part of it.

There are lots of different grants, especially for Indigenous students, and for health research, or research happening in universities. Different NSERC grants or co-op funding that is available, especially for people who are just starting out in research. Reach out if you are interested, it never hurts. The worst that can happen is somebody says no, and then you try again.

What are your future goals, after you have graduated?

Ultimately, my goal is to be a physician. I would like to be an Indigenous physician that serves Indigenous communities. As we know that there are large health disparities in Indigenous communities and Indigenous people rarely get to be treated by Indigenous physicians. The institutionalized racism that people experience can make it really difficult to access healthcare. I also enjoy health research and how it contributes to changes on a population level.