

STUDENT TESTIMONIAL

“Collaboration is also a huge part of science, so keeping your second language up can be extremely useful when you’re working with people from all around the world”

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Samantha Nixon completed the IB Diploma Programme at the Queensland Academy for Science, Mathematics and Technology. She is currently a researcher at the Institute for Molecular Biosciences at the University of Queensland, exploring how spider venoms can be used to combat parasitic diseases that have a major social and economic impact on Australia.

Why did you originally decide to pursue an IB diploma? What appealed to you about the programme?

I wanted to be able to study a strong science programme and languages at the same time, which IB offered. I also loved doing extracurricular activities, so CAS seemed really interesting. The system also seemed fair—in Queensland, your classmates and high school affect what grade you can get whereas in IB it comes down to your individual achievements. I also thought the courses were set out very well, with clear syllabi, which was really useful for helping me to plan my studies.

As an IB student, how did you shape your Diploma Programme studies to your interests? What courses were most valuable?

My favourite subjects were Mandarin Chinese, biology and English. I liked being able to study more of the courses I enjoyed and did well in, while choosing a relatively lighter load in the courses that I found more difficult—this helped me to manage the stress of the Diploma Programme. I was really interested in medicine, biochemistry, neuroscience, and ecology, and being able to tailor my studies to my passions made the classes much more fun and relevant for me. These also gave me credits for some of my courses in university to accelerate my studies and meant I already had a strong background in a lot of my elective university subjects.

Tell us about your current work—was there a moment when you knew you wanted to pursue this career?

I have always wanted to make a difference in the lives of those affected by poverty. My passion has been studying products in the natural world that we can utilize in medical applications. Venoms are a fantastic resource of natural products because they are specialized toxic gland secretions that are involved in predation, defense and competitor deterrence. I currently research natural products from spider venoms as novel treatments against sheep parasites at the University of Queensland.

As part of my research, I have been characterizing a compound from the venom of the Brazilian tarantula. What is really exciting about this compound is that we have also found it to be potently active against the human parasite *Brugia malayi*. This parasitic worm is one of the causative agents of the neglected tropical disease Lymphatic filariasis, which affects 120 million people worldwide and causes devastating elephantiasis. Excitingly, this compound doesn’t appear to have mammalian toxicity so we could have a potentially clinical useful compound.



Image credit: Institute of Molecular Biosciences, University of Queensland

Who inspired you most as an IB student? Did you have a mentor or teacher that left a strong positive impression?

I was extremely lucky to have many excellent teachers during my studies. All of them put in countless hours of their own time to help the students with practice exams, questions and tutoring. My extended essay supervisor taught me so much about academic research and writing, and she really pushed me to think critically and broaden my perspective. My English teachers made class insightful and fun at the same time. I am also very grateful to my Chinese teacher, who never gave up on me, and pushed me from someone who could barely count to 10 in Chinese to someone who could confidently hold their own in China.

Did the extended essay, TOK, or CAS prepare you for university? Are there skills you developed that you still use today?

The extended essay (EE) was my favorite part of the IB by far. My first topic choice looked at international law, and my initial work made me realize that I wanted to study the sciences. While it was too late to change to a science-based EE, I ended up studying the socio-political impacts of French and Belgian colonialism in the Rwandan genocide of 1994. I was really passionate about my topic, which meant that research and writing never felt like a chore. The EE really prepared me for university, as I was already used to using the libraries at the University of Queensland and reading academic papers by the time I started. In science, you need to read several academic papers a day to keep up with the research in your field so this has been really useful. Not to mention I had already had a practice run at writing a thesis by the time my own rolled around!

What advice do you have for current IB students that are thinking about a career like yours?

If you're interested in science, go for it! I would definitely choose either chemistry or physics to make sure you have a solid foundation before going to university, but if you're studying physics, for example, and realize it's not for you, that's okay! Science is very flexible—it's totally normal to move between fields. The important thing is to ask lots of questions, and keep developing your critical thinking and problem solving skills. Collaboration is also a huge part of science, so keeping your second language up can be extremely useful when you're working with people from all around the world!

The most important advice I can give you is to find good supervisors. Supervisors will make or break your research experience, whether it be in your EE or in as a student in a research laboratory. You need to find someone who will challenge you, but support you when you need it as well. I've been lucky to have excellent mentors while undertaking the DP, in my EE supervisor and teachers, and in my current research project.

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