

The unexpected scientist

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Graduating with my Masters' degree. Since both thesis supervisors were out of the country on the day, Marieke and Astrid celebrated with me on behalf of the ME&F lab.

Unlike many of my classmates, I knew exactly what I wanted to do after matriculating in 2011. The mental map of my life stretched before me resembled a perfectly straight line that confidently passed through the all-important landmarks of life: university, career, house, family and comfortable retirement. Soon after finishing school, I skipped the gap year and applied for a place at UCT Drama School to study Theatre and Performance. I was granted my first audition where I performed a monologue and a poem in front of two examiners and, following its success, I was called back for a second audition, this time as one of a large group of hopefuls from all over South Africa. During those several hours we were required to dance and put on improvised performances under the scrutinizing gaze of drama school lecturers

and dramatic arts professionals. I thoroughly enjoyed the whole process and, to my delight, a few weeks later I received a call to notify me that I had been accepted into the most prestigious drama school in South Africa, starting in 2012.

Sadly, the excitement didn't last long and two weeks into the program I dropped out. I still find it hard to explain why I left to people who inevitably ask. It was down to more of a feeling than an actual event. I had gone from being one of the top drama students in my year, to just one of many top students, all of whom, I was sure, were much more talented than I was. This, I think, is an unspoken feeling that many students are faced with. High school is a relatively small pond compared to university, a bubble that does not reflect reality or prepare pupils for the "Big Wide World". Many students who may have been top pupils at school face a harsh reality when they arrive at university. In a world full of billions of people, there will always be someone better than you. All you can do is be the best you can and be content with it. Yet despite my unease at being unceremoniously shoved off the pedestal to which I thought I had been firmly anchored, insecurity wasn't the driving force behind my departure from drama school, it was more the realization that the idea of making performance a career no longer made me happy.

After leaving drama school I took up a general BA degree. Having never considered the possibility of not studying drama, I had no plan B and so took up a jumble of random subjects which sounded interesting: anthropology, classical studies, archaeology and English. Unfortunately, I found almost all these subjects (barring archaeology) deathly boring and by the middle of the year I was feeling thoroughly miserable over my failed attempt at tertiary education. One day, towards the end of the year, a chance meeting with an old school friend led me to sit in on one of his biology classes. My friend knew that I had really enjoyed biology at school and thought I would be interested to see what the subject was like at university level. The lecturer (whose name I have sadly forgotten) was presenting a study in human biology, on female choices of mates in support of genetic diversity, documenting biological traits over and above cultural background. I am sure I must have sat through that entire lecture with my mouth agape and by the time the lecture ended I had made up my mind, I was going to study biology.

There was just one tiny snag. Although I had taken biology as a subject at school, I had not taken maths, physics or chemistry – all requirements to apply to the Science Faculty at UCT. After several days of intensive brainstorming, a family friend in the Science Faculty suggested that, if I was serious about studying biology, I should go back to school and write matric in physical sciences and maths. Next thing I knew, in 2013 I was sitting in a classroom at Rosebank Progress College trying to wrap my head around algebra. When I tell people that I have always struggled with maths they never believe me, touting the well-known fact that there is a link between learning music and improved maths skills (I played the cello for 9 years). However, after having been bullied at school by my grade 2 teacher, I lost all confidence in my ability to do maths and in the end I stopped trying. Any impromptu request for me to solve a mathematical problem, no matter how simple, makes my heart race and my eyes burn with tears of embarrassment and shame.

Despite my anxiety around returning to high school at the age of 21, I quickly realized that what I was doing was by no means unusual. Most of the people I attended class with were "returning students" – students who have written matric but return to school usually to improve their grades and in some cases, like me, return to do subject for the first time.

Rosebank Progress College, affectionately nicknamed “Progress “, is a high school just like any other, with added classes and specially trained teachers for returning students.

During my year at Progress I managed to cram three years’ worth of maths, chemistry and physics curriculum into my reluctant brain, and began to realize that I may eventually come to enjoy the simple predictability of maths. Exam time came and went, with the maths paper criticized for being particularly challenging that year. I knew that the Science Faculty only admitted students who achieved a minimum of 70% for maths and 65% for physical science, so that was my benchmark. When the exam results were eventually released, I found out that I had missed the maths benchmark by an agonising 2%. My memory is a little hazy around this time and I began moving through the motions as if in a dream. However, I never lost my determination. Yes, the maths mark thing had really put a spanner in the works there was no denying that, but I had worked too hard to give up at that point, *there had be another way*.



Explaining seed dispersal of sour figs to two of my friends on a Mountain & Ski Club Cedarberg trip at the end of my second year.

I spent the remainder of my holiday before UCT opened for its 2014 academic year following up on advice from the same family friend who suggested I return to school. They had suggested that if I could convince the heads of department for maths and chemistry that I was motivated enough to put my all into the respective courses, they may give me a concession to participate. If I passed those courses, then I may have a chance to join the Science faculty. With this exciting prospect in mind, I diligently and somewhat obsessively began to knock on doors, pleading my case to take first year maths and chemistry. Eventually I was granted concession to take both subjects. My last challenge was to convince the dean of science to agree to accepting me into the faculty should I pass. Naturally, they were skeptical. As a rule, students from the humanities are not permitted to move to the sciences because historically very few succeeded. The only other person I know to have survived it is UCT’s very own Prof. Edmund February. Whether it was my truly inspirational show of commitment to study science, or that I was beginning to get on their

nerve, I was assured that should I pass my maths and chemistry courses, I would likely have a place in the Science Faculty. The last few weeks of holiday felt like I was walking on air until it began to dawn on me that I had no idea how I was actually going to pass these university level courses – I had had a bad enough time of it at Progress. In preparation for the worst, I arranged tutors for both subjects as I knew I was going to need all the help I could get.

I can best describe the start of my first “pretend” year in science as the feeling of being hit by a tsunami. I was totally overwhelmed, drowning and disorientated. I managed to cling on to my chemistry course by a fingernail – all thanks to my wonderful tutor, but the maths course was lost to the wind and waves. I continued to diligently go to my lectures every day, but I had absolutely no idea what was going on, nor where to even begin to ask for help. I stopped

seeing my maths tutor and withdrew from my parents who I was living with at the time, sharing as little as possible as I didn't want them to know how much I was struggling. They, of course, knew that something was up, but didn't really know how to help me. As the first semester drew to a close and exam time rolled around, I knew that I didn't have a hope of passing my maths exam and all my hard work to get to that point was for nothing. The night before the exam I completely unraveled and had a panic attack so severe I had to be sedated.

I never wrote that maths exam, instead I opted to re-do the course in the second semester which turned out to be a blessing in disguise. The course was taught at a much slower pace and seemed to be mostly made up of students who, like me, couldn't crack it the first time. I began to really enjoy the lectures and managed to keep abreast of the coursework which gave me a huge sense of achievement and a much-needed confidence boost.



Underwater Club diving trip in my third year.



Graduating with a BSc

At the same time, I was still managing to keep my head above water where chemistry was concerned and at the end of the year, I sat both maths and chemistry exams and *passed*.

I would love to say that my undergraduate years were easy-breezy from then on, but unfortunately that was not the case. My second year was still plagued with anxiety and dotted with regular panic attacks as I battled to keep up with coursework, constantly feeling one step behind my peers. I was now studying with a group of students who would later be heralded as one of the brightest cohorts to grace the biological sciences at UCT and I felt very out of place. However, in my third year something changed. I think the combination of being able to narrow my field of study to what I was truly interested in (marine biology) and a growing confidence in my ability to

learn and practice science made me finally feel like I *belonged* in the sciences and I had earned my place to be there.

At the end of my third year I graduated on the Dean's Merit List (awarded to students with above average academic performance) and was accepted to do my Honours in Marine Biology. Being able to focus completely on marine related coursework during my honours year was everything I had been hoping for in my time at university and I absolutely loved it. I met my thesis supervisor, Dr



Celebrating with one of my oldest friends

Laura Blamey, through my favorite course on temperate reef ecology and she then introduced me to my co-supervisor, Dr Lynne Shannon. My honours thesis focused on the movement of West Coast rock lobster into kelp forest ecosystems on the South West Coast where they had previously been rare, and the subsequent dramatic change in benthic environment as a result of the lobster invasion. Although my thesis was solely desk based, I found myself enjoying the methodical nature of data cleaning, processing and analysis, which came as a surprise to me as I always thought I would prefer to spend time out in the field and hate to be chained to a desk. The learning curve is steep during your honours year and reflecting on my own honors class, the process of research was definitely not for everyone.

The following year I went on to join the MSc program in Conservation Biology (CB) at UCT. Although predominantly terrestrial focused, I chose to apply for the CB Masters' degree because it has an excellent reputation, is internationally recognized and has a high track record of student employment. The program is also notoriously tough, which I can certainly attest to, with eight months of non-stop challenging coursework followed by five frantic months to write up one's thesis. Despite not always being enjoyable, the coursework certainly gave me a broad foundation in conservation issues, as well as a great number of transferable skills. I did my MSc thesis using Ecopath with Ecosim (EwE) under the expert guidance of Drs Lynne Shannon and Laura Blamey who kindly accepted to supervise me once again. Through this experience I discovered a love for the EwE program and ecosystem modeling, and I managed to create two useful models myself along the way. In March 2019 I was lucky enough to present my thesis at the 20th Student Conference in Conservation Science in Cambridge, UK. Among the many incredible experiences I had at the conference, meeting Sir David Attenborough was definitely number one! In April, shortly after returning home to Cape Town, I managed to top an already wonderful year by finally submitting my thesis.

Currently, I am working as a research assistant to Prof Astrid Jarre using Hidden Markov Models to analyse changes in wind patterns on the South Coast. Me? Making statistical models? Who would have guessed? During my time as a research assistant I have learned a huge amount, not only regarding coding and modelling, but also about what it means to do research and the highs and lows that come with it. I have been given the opportunity to be

part of WWF and SASSI workshops which have been eye opening and hugely enriching. I am also working on getting my masters' thesis paper published and I hope to get a paper out of the work I am doing now as well. Going forward I hope to start taking the necessary steps towards starting my PhD. Although I have always vehemently denied that I would ever do one, I have come to realise over the past few months that the experiences I have had as a research assistant have solidified my love for modeling and working with data and that research is what really makes me tick.

So perhaps, after all these years, I am not such an unexpected scientist after all. My dad would say that he suspected it all along, but as they say, hindsight is 20/20. Along my journey I have met many people whose path in life hasn't exactly been straightforward, and I think it gives people like us a certain edge. Speaking from my own experience I can say that I have become much more resilient, determined, self-reliant and sure of myself. I am clear about what I want and prepared to take the initiative to go out and get it on my own. For anyone reading this who feels that their life may be at a crossroads, I hope my story inspires you. It is never too late to change your mind or your career, eighteen is very young to be making life changing decisions and we all make mistakes. Despite what the average university career may look like from the outside, there are many people who take the "scenic route" and end up in a much better place than when they started – a little bit older and wiser and ready to commit time and energy into pursuing their studies.

After eight years of blood, sweat and many, many tears I finally find myself right where I want to be, working shoulder to shoulder with a group of likeminded people who get just as excited about "marine things" as I do.