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## Learning how to be an academic - the story of a new academic in the sciences

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## CHAPTER 2

# *Learning how to be an academic – The story of a new academic in the sciences*

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Entering university at 17, I knew I wanted to study chemistry, but I wasn't sure where it was going to take me. By the end of my science degree, having sampled a year of Science/Engineering and two years of Science/Law at Monash University, it was clear that academia would be my path. A few years later I emerged from the Australian National University with a doctoral degree in organic chemistry under my belt, my passion for chemistry strengthened, and the feeling that I had a ticket to explore the world and all it could teach me. I embarked on postdoctoral stints in Italy and Germany, where I worked in marine natural products and carbohydrate chemistry under the tutelage of inspiring mentors with vast amounts of knowledge and creativity. Although I worked long, hard hours, I also took the time to explore the countries, learning each language and experiencing its culture.

I returned to Australia to take-up a postdoctoral position at the University of Sydney in yet a different area, this time peptide chemistry. At the same time I undertook some part-time teaching, tutoring first year chemistry at the University of Sydney and coordinating a second year chemistry subject at the Australian Catholic University. I later moved to the Heart Research Institute, where I worked in the field of HDL ('good cholesterol') metabolism. I applied

for academic positions around the country and, although I had looked previously for such a position, I found that by this time I had accumulated a diverse array of skills. From a host of positive responses, I chose a position as a lecturer at the University of Wollongong, six years and four postdoctoral positions after completing my PhD.

My first year at Wollongong, was a steep learning curve – in fact a 90 degree learning cliff would be a more fitting description. There is no course available on ‘How to be an academic’. You arrive and are given your teaching roles, coordination duties and research lab (in my case, with bare cupboards) and are somehow expected to know who, what, where, when and how. You are supposed to know what there is to do, when it has to be done by, and how to do it. I was very fortunate with my choice of the University of Wollongong since there was always someone to take you under their wing and guide you. However, even with this help and having had prior teaching and coordinating experience, it was still an exhausting year, with lots of days submerged in subject coordination duties and evenings and weekends buried in lecture preparation and grant proposal writing.

In my second year, the teaching and subject coordination was much easier, as I knew what had to be done, when it had to be done by and I learned how to do it better. I had two students working with me and so my next learning curve was about the supervision and managing of research students.

Now halfway through my third year, things have certainly settled down. I feel that I have my teaching roles in order, and I am currently supervising a team of six research students. Through some negotiation I have ended up with administration duties that I enjoy, such as the coordination of second year organic chemistry and being a member of the academic senate. My position was recently converted to a tenured position and I have enough funds to support my research team. The result of these developments is that many of the pressures of the first two years have been eased, allowing me to better plan for the future.

Reflecting back on my first two-and-a-half years, the single most important aspect of my academic life has been time management. We are employed as both teachers and researchers and our theoretical workloads claim a 40:40:20 split between teaching, research, and administration respectively. Yet without good time management it is deceptively easy to spend more time on teaching than research. What needs to be kept in mind, however, is that when it comes to promotion, research weighs more heavily than teaching and that means that your research output must be considered in all decision-making processes.

Although I am still discovering the best way to manage my time, one thing I have learnt is to block my teaching and research roles to different days of the week. We might all like to have an open-door policy but, depending on class sizes, this can consume much of your research time. If you advertise your availability, this allows you to better focus on your research outside of those consultation times.

Rather than have students email their questions to me, I encourage them to come to see me face-to-face to work through their problems. This results in a deeper understanding of the issue by the student, and reduces the numbers of emails to contend with in a day. It is imperative to prioritise those tasks that are most important (e.g. writing research articles), above others that are less important but take-up disproportionate amounts of time.

Perhaps the most useful, but contentious, bit of advice I could offer a new academic is that there are times when you will have to learn to say no. When you first begin you are not aware of what you can, and can't, say no to. The new kid on the block is often the one most likely to say yes to a request to join a particular committee, to staff a departmental event, or to take-on a particularly time-consuming teaching or research role without realising it. In the growing climate of casualisation of academics, many positions begin as fixed-term, which only strengthens your feeling that you have to say yes to everything in your quest for a continuing position. Good management from the top will help avoid this situation, but it is important to keep that 40:40:20 split in mind and ask yourself if you are taking on too much of one particular role.

University Teaching and Learning courses are of great assistance to academics in improving their teaching, and bring to light fresh ideas such as facilitated learning in a student-centred, enquiry-based approach that moves away from traditional content-based lectures. However, it is also the case that, if you wish to hold a discussion in Chinese or Arabic, you need to learn basics such as the alphabet, the script, and the rules of grammar, and so it is in chemistry. The students need to learn the chemistry alphabet (the elements), language (the periodic table) and grammar (periodic trends), before they can hold discussions in chemistry. Therefore, content-based lectures that build the foundations of chemistry still play a strong role in science teaching. What would be useful to know is: How do we get through to large lecture classes of hundreds or even thousands of students, especially in compulsory subjects that service other degrees and comprise students who may not have studied the subject at high school? There are several creative ideas around for enhancing student engagement such as group work, multimedia presentations and computer adaptive assessment; however many of these ideas are difficult to apply in large classes, and may occur at the expense of more lecture preparation for the time-strapped academic. What we need is a manual on 'How to be an academic' – such as this book – which suggests strategies for achieving more effective teaching without increasing academic workloads.

Academics today face many more challenges than those 20 years ago. There are higher student-to-staff ratios, which have led to increased class sizes and associated administration. Many students work either part- or full-time and, as a result, there is demand for greater flexibility such as more lecture options and

night classes. However, increasing student numbers mean that lecturers are faced with mounting workloads and night classes are far from ideal for academics, particularly ones with families, who are trying to juggle their own work–life balance. In the face of diminishing research funding, there is a push towards commercialisation of research. However this commercialisation brings with it intellectual property issues, plus lengthy research contracts that may take months to execute, and a level of insecurity because many industry contracts are short-term – all factors which can slow down the pace of research. There are also other issues facing today’s science academic, including trying to accommodate a diverse range of student backgrounds and increased accountability. An ongoing issue in the physical sciences and engineering fields is the paucity of female academics, despite increasing numbers of female undergraduates entering these courses.

In the face of these challenges, we are all striving to be successful academics and we each have our own measuring stick. What I count as a measure of my success is to balance my teaching, research and administration roles to reflect the theoretical 40:40:20 split, that I could do this in a normal working week and not one that included evenings and weekends, and that within this balanced work environment I could achieve continual improvements in both my teaching and research outcomes. This may be somewhat of a fairytale in today’s academic environment, but we could achieve a lot more in the academic sector if we worked together within our departments and schools, within our faculties, and within our disciplines across Australia. We need to combine our research strengths and be more strategic in obtaining research dollars from both government and industry. We need to teach in a smarter way, with less formal teaching hours but greater student comprehension, and we could better utilise the resources available to us, such as the educational divisions within our universities and online material from textbook producers. It is also important that the universities themselves facilitate both our teaching and research as best they can, and to that end I have been incredibly fortunate to land at the University of Wollongong where there is a strong sense of collegiality and inspirational leaders providing guidance.

Life as an academic isn’t easy, the working day is long and full, and the ‘to do’ list never gets any shorter. However, the rewards are plenty – tuning into your discussion board and seeing a lively chemistry discussion or students helping one another to learn; when your student lands a top job in a company; when the light bulb flicks on; or when a research student comes to you with the solution to a problem they have been sweating over for weeks and a glint in their eye. Yes, there are challenges ahead, but it is important that we work together to face them – as through our teaching we are raising the next generation of politicians, law-makers, doctors and scientists, and through our research we are helping to make the world a better place. The future is in our hands.