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0521851912 - Building a Successful Career in Scientific Research: A Guide for Ph.D. Students and Post-docs

Phil Dee

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Building a Successful Career in Scientific Research

From Ph.D. student to post-doc, Phil Dee has been sharing his career experiences with fellow scientists in his regular and highly acclaimed Science's Next Wave column since 2000. Now his invaluable and entertaining advice is available in this compact warts-and-all guide to getting your science Ph.D. and subsequent post-doctoral employment as a researcher. Phil Dee offers you the inside track on what life in the lab is really like, with down-to-earth suggestions for making the most productive use of your time, dealing with personal relationships in science and maintaining your morale, as well as dealing with more practical issues like how to design a really good poster for a conference. As well as being based on the author's own experiences of working at the lab bench, in front of the computer and the conference hall lectern, the book brings together a wealth of advice from other young (and old) scientists who have made it in science, and from a few who haven't. The book has deliberately been written without reference to specific scientific subjects and will therefore be accessible to all early career scientists worldwide.

Phil Dee reinvented himself as a scientist after his previous jobs in the world of finance failed to stimulate his career aspirations. He now holds a first class honors degree in biology and a Ph.D. in molecular cell biology, along with a growing collection of prizes, awards, and grants bestowed on a successful young scientist. He started writing about his career experiences in the world of science after a chance encounter with a Next Wave editor unearthed Phil's extraordinary track record of talking with all sorts of people in science and his gift for seeing science as it is. Phil currently works as a post-doctoral research fellow in the UK.

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PHIL DEE

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To Jo.

It's not about us.

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Foreword

Being successful in science is an acquired trait. No one is born an eventually successful scientist. Some people may be better endowed than others with core traits that help lead to success: Being very smart is useful, and we know there's a genetic contribution to intelligence. Some people seem to be temperamentally more creative than others. But just being smart and creative does not ensure stardom in science. Just as one has to learn the substance of one's field and the details of scientific methods and technologies, there is much to learn about science as an enterprise and a community of diverse individuals.

There is a sequence of educational phases one must go through before becoming an independent researcher, and much to know about how to thrive at each stage. The scientific community has its own set of unique values and behavioral norms. These need to be learned and incorporated into one's way of working and dealing with one's colleagues. Speaking of one's colleagues, scientists can be an extremely competitive bunch of people, and there is much to be learned about working within that club.

Finally, being a scientist is not a unitary thing. Science provides a very wide variety of wonderful career options, although few people really are aware of the breadth of them. Scientific careers can also be quite complex and take many different forms. Few people only do research. Most do some combination of researching, teaching, giving talks, and serving on institutional and

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organizational committees, often at the national or international level. Working in a university is quite different from being a scientist in industry.

Scientific training is almost always only about the substance and methods of one's discipline. There are very few formal courses about the culture of and careers in science. Some mentors do a very good job helping their students prepare for life in the real world of research, but others seem to think one should learn on the job.

About a decade ago, the staff of AAAS and its journal, *Science*, recognized the need for a resource where scientists could turn for comprehensive career advice. They created the web site called *Science's Next Wave*. This site contains a very wide array of up-to-date articles written for developing scientists around the world interested in careers in academia, government and industry settings. Pairing *Science's Next Wave* with its partner job-posting site, called *ScienceCareers*, enabled AAAS to offer the most comprehensive career resources available to scientists from the entire spectrum of fields.

One very popular feature of *Science's Next Wave* has been the regular columns by Phil Dee. Collected together in this book, they provide a wonderfully - written guide to navigating the pitfalls and paths to success in the very complex and competitive set of careers that make up the scientific enterprise. The style is light, the tone at times quite witty, but don't underestimate the wealth of information and frequency of useful insights. This is a book that should be read by every scientist, preferably before they get too far along in their developing careers.

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for the Advancement of Science
Executive Publisher, *Science*

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Preface

I love being a scientist. It's the most infuriatingly rewarding profession on the face of the earth and daily drives me mad. Science is full of people like me, concentrating really hard on usually abstract subject matters. They are busy and often pre-occupied. This makes maintaining relationships less than easy. Throw in the lack of a stable career path, lower than average financial rewards, often repetitive, boring work and more personal rivalry than you'd find in a large multi-national company and it can seem a daunting prospect for any newcomer. But the payback is great if you can hang in there. I don't care what anyone says, science is about the massive rush you get when you see something previously unseen by anyone; end of story. This book is intended to help the novice scientist wise up fast when they find themselves facing the seemingly impenetrable and incomprehensible world of science for the first time. It's also about cutting it as a professional scientist once you've jumped all the fences and 'been approved', however long that process is supposed to take in your particular institution and country. In between these two extremes lies a plethora of down-to-earth and sometimes humorous advice. I make no apologies for taking a sideways look at science – it often needs it.

This book emerged from a series of articles I wrote for the AAAS's Science's Next Wave web magazine whilst studying for my Ph.D. and working in my first post-doctoral position. The advice and suggestions in this book are based on my own

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experiences as a developing scientist and on the countless informal ‘interviews’ I have conducted during my own private research into how science works. I would like to thank all the people, both humble and egotistical, who influenced my thinking during the long backbreaking years of study and research when I reinvented myself as a scientist. I now know who I am. Without their unwitting input I would not have such a clear idea of what on earth happened to me in these past few years. My sincere thanks to Kirstie Urquhart for that impromptu chat at the conference that led to the Next Wave column and for all she has done since. Thank you also to Elisabeth Pain, Anne Forde and Katrina Halliday.

To my wife and family I can only say, you know that I know what’s really important. I love you all.