

# Research Ethics for Scientists

A Companion  
for Students

C. Neal Stewart Jr.





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**C. Neal Stewart Jr.**

*University of Tennessee*

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## Preface

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My initial involvement with research ethics was quite accidental (to me) and commenced just as I began my own PhD programme as a student. I was selected by the Associate Dean of the graduate school to be the Chief Justice of my university's graduate honour system. To this day, I still don't understand how that all happened, but now I realise the huge affect it subsequently had on my career. Unbeknownst to me at that time, it paved the way for this book some 20 years later. As Chief Justice, my duties were to help investigate and hear cases of plagiarism, research misconduct, and cheating in courses by graduate students – my peers. I still recall my major professor's response when I asked him what he thought about my taking the job. "If you don't mind judging your fellow students. . ." In other words, I don't think he believed it was such a good idea. I wasn't altogether convinced about this new gig either – I thought it had the potential to be a significant diversion from the research I needed to do to graduate. Plus, truly, what scientist wants to judge the allegedly bad practices of his fellow peers in research? This, I find, is a common feeling among scientists. Few scientists are comfortable policing the conduct of other scientists.

The Graduate Honour System cases of alleged student misconduct were heard and decided by a panel of faculty members and graduate students. I simply presided over the proceedings and administered the system. If a guilty verdict was found, then a penalty would be prescribed, and I was the guy to tell the accused of their fates. These penalties ranged from probation to dismissal. After the hearings I walked downstairs from the hearing room and into the ersatz waiting room, personally delivered the good or bad news to the graduate student; always an anxious moment. This simple bearing of good or bad news showed me in a profound way that there is a face and heart behind every case of scientific misconduct.

Hearing these cases over three years opened my eyes to the world of bad behaviour in science (and most of the cases we heard were in fields of science or engineering) that I hadn't realised even existed. It also helped me understand some of the psychology and pressures that precipitated academic misconduct. That experience helped steer my own career clear of major potholes and fatal wrecks alike. Oh, I still made my share of mistakes, but none were fatal. I had simply been given the somewhat unique chance to learn from lots of other people's mistakes. And I think I could have steered clear of a few more of my wanderings had I read a book such as this one and/or sat through a one-hour graduate course on research ethics. I'll make my own confessions throughout the book, and we will examine real and fictional case studies that should be fuel for thought as scientists wind their way through their careers.

With my PhD in hand and the busy day-to-day tasks of running a lab and teaching, the days of my ethical “trials” were a distant memory. Real-life research integrity didn’t hit home until just a few years ago when I was the “victim” of plagiarism. I vividly recall reading my own words from another person’s paper and thinking, “this looks familiar – and the writing’s not so hot.” A student’s plagiarism of my own work inspired me to pursue ethics anew in the form of co-teaching a graduate course on practical research integrity. This book then naturally arose from my teaching experiences, and from the fact that when my colleague and I searched for a book or material to help teach our graduate-level research ethics course, we learned there are a plethora of works on bioethics and many fewer that address research ethics. As a practicing biologist, I don’t consider this book to be a scholarly treatise in ethics; it is written to practically address common problem issues in scientific research with narrative and case studies. I wrote it as a guidebook of sorts – both for undergraduate students contemplating a life in science and those graduate students and early career scientists who find themselves in the thick of it. In the end, the book turned out to be more autobiographical than I’d set out for it to be. That said, all opinions are my own and all names I use in the fabricated case studies are also fabricated. Any resemblance to real people is purely accidental.

I am thoroughly convinced that the best ethical practices lead to the best science. Granting agencies such as the National Institutes of Health (NIH) and the National Science Foundation in the US must agree as they require research integrity training to their awardees. I think it is simply a matter of time before all US funding agencies follow suit. I see more and more scientists now motivated to teach courses in research ethics to address these needs. Aside from mandates set by funding agencies, there seems to be a growing number of colloquia, informal meetings and workshops on research ethics being held. This is a welcome trend to proactively address real concerns in a complicated research world. Research integrity is for everybody!

**Knoxville, TN, USA**

*March 2011*

## Acknowledgements and Dedication

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Many people have shaped my life and career and have therefore shaped this book. I'm greatly indebted to my scientific mentors who took a chance on me as a trainee: Erik Nilsen and Wayne Parrott. For each I was unproven and a significant risk, but they saw past the risks to the potential. They are both superb mentors. I'm also indebted to my own trainees. My career was born and sustained because of these tireless and dedicated individuals who work the pipettors so I can attempt to make contributions in other ways. In addition, they and others have taught me innumerable and valuable lessons about best practices in science research.

I'm grateful to people who have joined me in teaching research ethics, especially Lannett Edwards who co-founded our course four years ago. Charlie Kwit and Lana Zivanovic joined me in teaching research ethics last year and graduate students H.S. Moon and Blake Joyce were teaching assistants and acted as peer teachers in the 2009 version of teaching ethics. In 2010, Mark Radosevich joined Lana in teaching the course and graduate students Charleson Poovaiah and Jonathan Willis have acted as teaching assistants. Without EPSN funding for partial graduate teaching assistantships for these four students, we'd all have been poorer without their input in our course. I'm also grateful for the help provided by graduate student Kim Nagle during the class. I've learned a lot about ethics from teaching with all of these capable individuals.

I include also Gary Comstock in this list of key people to thank. When I first got interested in teaching research ethics I was fortunate enough to call Gary to get his advice on the subject and attend one of his research ethics workshops. His vision and input was critical to what the course, and ultimately this book, became. He is a real professional in this field and is one of its leaders.

So many people helped on the book manuscript by rendering figures, organisation, proofreading, editing, and getting permissions, among other things. At the top of this list are our group's able administrative specialists, Michelle Hassler and Jennifer Young Hines, who did much of the administrative work (and there was lots of it!) for the book. Reggie Millwood, Blake Joyce, H.S. Moon, Mitra Mazarei, Virginia Sykes, Dave Mann, Muthukumar Balasubramaniam, Jonathan Willis, Jason Abercrombie and other people in my lab played critical roles in contributing and fine tuning the contributions.

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