

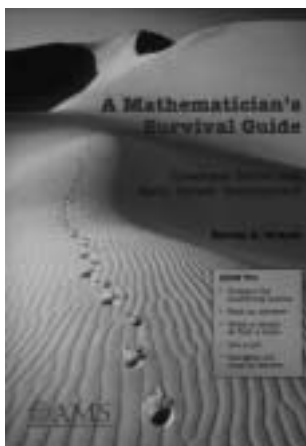
A SELF-HELP BOOK THAT DELIVERS

Book review by Mitja Mastnak, Dalhousie University

A MATHEMATICIAN'S SURVIVAL GUIDE: GRADUATE SCHOOL AND EARLY CAREER DEVELOPMENT

by Steven G. Krantz

AMS 2003 xv + 222 pages



Whenever in a book store, I make a point of plotting a course that steers clear of the "Self-Help, Career Advancement and Personal Growth" aisle. Thus, I was a bit leery, when I saw that the book I was to review had "career development" in the subtitle. When I noticed that the front page was promising to teach the reader to prepare for the qualifying exams, find an advisor, write a thesis, get a job and navigate the road to tenure I was almost alarmed.

Once I got past the cover, I was relieved that there was no "ten easy steps to become a brilliant mathematician", no "seven best kept secrets about proving lemmas", nor any "four habits and twenty sub-habits to...". Instead the author offers good, common-sense advice and shares his own bountiful experience. The book delivers on the front page promises better than I believed was possible. On the other hand, even though I did personally deal with many issues the guide describes, I do not believe that the book's advice would have impacted any of my decisions.

The style of writing is forthright and enticing. I have never before encountered a book with so many, and so many great footnotes. I am tempted to say that footnotes alone make reading it a worthwhile experience. The narrative is often spiced up with funny stories and interesting bits of trivia. For instance, in discussion about Ph.D. thesis defense, the Swedish model is mentioned. I found it very amusing to learn that in Sweden the tradition calls for a famous foreign mathematician to present the thesis on the student's behalf, one person to ask pointed questions and another to be responsible for cracking jokes and making fun of the whole proceeding.

My favourite part of the text is about the mathematics one should know. Steven Krantz managed to write a remarkably comprehensive survey of the

rudiments of real analysis, complex analysis, geometry, topology and algebra in just a few pages. I like the emphasis on the interplay between these areas and I wholeheartedly support the author's belief that successful mathematics is practiced by creating a synthesis of different areas. This is one of the single most important ideas I adopted during my university years. I still chuckle, when I recall what an algebra purist I was (a little knowledge is a dangerous thing). For instance, when I first saw a proof of the Fundamental Theorem of Algebra, I felt as if algebra was being violated by complex analysis.

A Mathematician's Survival Guide starts the reader off as an undergraduate. Here, the advice ranges from what courses to take, to how to choose a graduate program and how to apply. I urge any student, who is considering a career in mathematics, to pay close attention to the discussion on which areas of mathematics you should cover in preparation for graduate school.

Later on, some elements of graduate education are described. These include the qualifying exams, teaching and thesis work. Topics like: foreign language requirement, fellow students, departmental staff, faculty and practical as well as moral "sticky wickets" are also addressed. A lot of advice here seems quite obvious to someone who already navigated these waters. But, to be fair, everything is usually clearer in retrospect.

Most matters discussed in the book also apply to Canadian universities. It would have been nice though, if the talk about Canada was extended beyond a single footnote. Any student here would certainly benefit from learning more about institutions, like CMS and NSERC, that play an important role in the life of a Canadian mathematician.

One of the main differences in Ph.D. programs in mathematics between Canada and the States is a masters program. At many Canadian universities, Dalhousie in my case, you have to get a masters degree before starting with the doctorate. In my personal experience this was, by no means, a waste of time. I was even fortunate enough to stumble across an interesting research problem that became a basis for my doctoral work.

The guide also discusses the abrupt transition from undergraduate to graduate school. Here my experience also differs. This is due to the fact that at the school from which I received my undergraduate degree, University of Ljubljana, students specialize much earlier. Krantz briefly mentions that this is true for most European universities in comparison with their North American counterparts.

I believe that *A Mathematician's Survival Guide* can be of use to an aspiring mathematician. The author's writing style and knowledge has resulted in an optimal publication of this type. If one were deciding between this book and another book of the same nature, I am certain that this book would be a good choice. The text is engaging and the footnotes make it even more enjoyable.