

# Book Of Proof



## Synopsis

This book is an introduction to the language and standard proof methods of mathematics. It is a bridge from the computational courses (such as calculus or differential equations) that students typically encounter in their first year of college to a more abstract outlook. It lays a foundation for more theoretical courses such as topology, analysis and abstract algebra. Although it may be more meaningful to the student who has had some calculus, there is really no prerequisite other than a measure of mathematical maturity. Topics include sets, logic, counting, methods of conditional and non-conditional proof, disproof, induction, relations, functions and infinite cardinality.

## Book Information

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## Customer Reviews

This is a wonderful book. Written as a text for a one-semester "transition to higher mathematics" course, it introduces the undergraduate to logic and proofs and to the basic objects and language used in higher mathematics. It is ideal for the many American undergraduates who come to college with little or no experience with proof or formal reasoning and need to be brought up to speed quickly in order to succeed in upper-level mathematics courses. -- Mathematical Association of America, [maa.org/press/maa-reviews/book-of-proof](http://maa.org/press/maa-reviews/book-of-proof)

As an M.Sc. in Electrical Engineering, I had to get a pretty extensive background in applied math, but almost nothing in theoretical math. I've lately taken an interest in various types of algebras, but I realized I didn't have the theoretical background. In preparation for a (live) class in Abstract Algebra,

I needed to learn to do formal proofs, and I didn't want to sit through a full semester of that. So I looked for a self-study book, and "Book of Proof" turned out to be the book. It's tailor-made for self-study, and as a bonus, it's very affordable. Dr. Hammack literally starts at the beginning, with the basics of notation, sets, logic, etc. He introduces proofs gently enough to allow a determined self-student stay with it. There are plenty of exercises with odd-numbered solutions and these of course should not be skipped. Dr. Hammack then works through what amounts to a survey of various formal proof types, with plenty of examples and sufficient discussion. All of the major types are covered. My one minor criticism is that I think proof by induction could have used more attention, but you can supplement that elsewhere if you have the need or the urge. I wouldn't call this book either "deep" or "comprehensive" but that's not a criticism. The book is what it should be, a survey course, and it's at least enough to prepare a student for the next steps. Combined with a course in Linear Algebra, Abstract Algebra will come within reach, as will other higher-level, deeper, and more specialized courses. Of course, it almost goes without saying that if you elect self-study, you've got to pay attention and work at things. No skimming! But I'm finding the payoff is high. This is clearly the right book for home use. It's lucid, literate, well-constructed, and affordable. Hats off to Dr. Hammack for his contribution to the determined learner.

Hammack has very clearly created the exercises so that one builds on the next. I have been trying to find a book that covers this subject adequately for some time now, and the rest have fallen short of clarity or conciseness. Update: Chapter 3 has totally insufficient coverage for the topics. It is listed as optional at the beginning of the book, but that doesn't excuse how little detail it goes into (and the questions are really foul and not fair given the material presented).

This book was required reading for one of my Computer Science classes. The pdf is available for free online, but after reading a bit of it I decided I wanted a physical copy. I had previously taken a Maths based class on proofs and the book that was used in that class was hard to understand and follow. This book does an excellent job of explaining concepts and providing practice problems. The sequential organization is also well thought out, as it flows from one topic to the next fluidly- unlike my previous text that felt jarring and confusing in some of its jumps. The print quality itself is quite good- after hauling it around in my backpack all quarter it's still holding up quite well- which is more than I can say for many \$100 paperback books. The print is all easy to read with no bleeding, blurriness, or other signs of low quality printing.

Excellent book. I'd never done any maths beyond year 10 (jr high school) and was given this as a supplemental text for a Discrete Mathematics course I was doing for computing. Needless to say I was completely out of my depth in the course. This book saved me and I passed. Since then my confidence with mathematics has grown and I have drawn on the principles in this book to understand other areas of mathematics not covered in the book such as Calculus. What the book does best is reason. It presumes almost nothing of the reader and builds concepts from the very basic points incorporating formal definitions and proofs naturally as they are encountered. I cannot recommend this book any more highly to people who are new to Mathematics.

I give five stars only for clarity. The author hits a very nice spot between rigor and understanding. The content does not claim any comprehensiveness, nonetheless the presentation leaves almost nothing to be desired. Kudos to the author. If you have read this lovely book and feel you still need to know more about proof, then the next step would be 'How To Prove It' by Velleman. That is a beast of a book.

My first encounter with this book was before I started my master's in CS. I wanted to review my math and found this book. This book has opened my mind to the way I understood numbers. It is extremely well written and has a great flow to it. Best math book I ever read.

The price is excellent so I use this in my classes. There are parts of the presentation I object to, but I find this with virtually all texts I teach from. For example, I think the book takes too long to get into the proof techniques proper. We'll use it again this semester. I am really tired of the publishers that are asking \$150 to \$200 for a text for a one semester course--it is just not fair to students. If you have any question about its content--go to the author's site. The text is available as a free download there! But personally I like a book in my hand and at this price that quick is easily satisfied.

Great book!

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