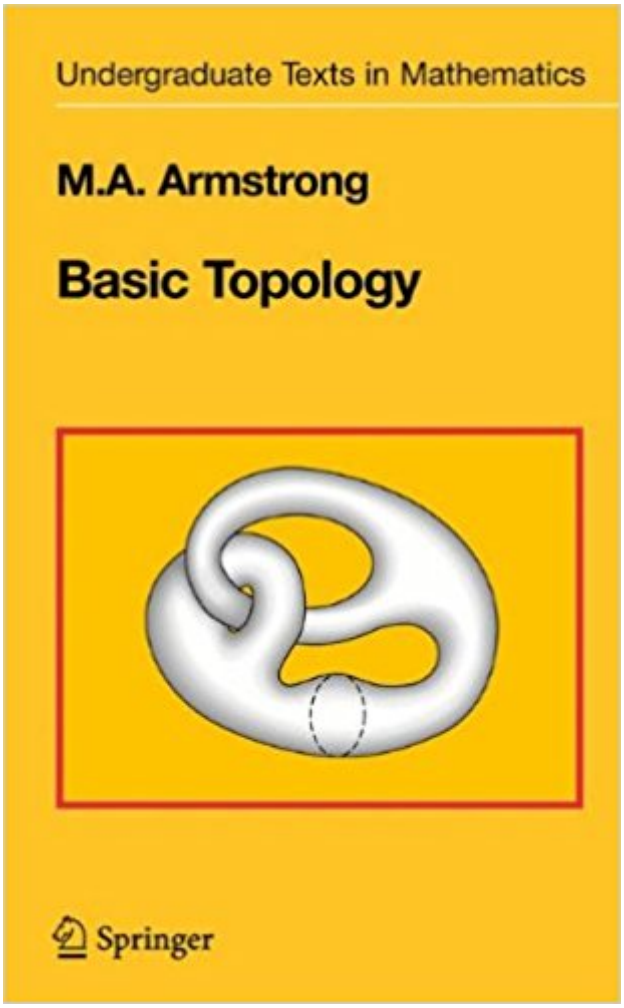
Basic Topology (Undergraduate Texts In Mathematics)



Synopsis

In this broad introduction to topology, the author searches for topological invariants of spaces, together with techniques for their calculating. Students with knowledge of real analysis, elementary group theory, and linear algebra will quickly become familiar with a wide variety of techniques and applications involving point-set, geometric, and algebraic topology. Over 139 illustrations and more than 350 problems of various difficulties help students gain a thorough understanding of the subject.

Book Information

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Customer Reviews

"The book is very good, its material sensibly chosen...It has good and plentiful illustrations...for the author, topology is above all a geometric subject..." -- MATHEMATICAL GAZETTE

I can see how this book has left very few people happy. To generalize broadly, one often finds two types of reviewers of math books on : those who find the text too difficult, and denounce it; and those who implicitly denounce the first group by means of vigorous support of the book in question. Typically this latter group goes on to write reviews of books *supported* by the first group in which they denounce the excessive "hand-holding," the pandering to the reader's "intuition," and the general attempts to make the material accessible.This book, however, manages to both require a non-trivial amount of effort and sophistication from the reader (thus alienating the first group), all while also appealing to intuition and giving large numbers of examples (thus alienating the second).The following example should make the author's approach clear. On several occasions,

Armstrong gives a non-standard definition of an idea. This is usually a definition that is more intuitive (to the beginner), but which is harder to use to complete proofs. This non-standard definition is followed by the standard definition, and the equivalence of both formulations is established. This is the case with connectedness, for instance. First, connectedness is defined by appealing to the idea that a space "should be one piece," leading to the formulation that whenever a connected topological space is decomposed into two subsets, the intersection of the closure of one of these sets with the other set is always nonempty. Soon thereafter, the standard formulation (the formulation which one almost always uses to actually write proofs) is introduced and established as equivalent, namely that a connected topological space is one in which the only sets that are both open and closed are the entire space itself and the empty set.It is true that this approach makes for a bad reference book. It is also certainly not the most elegant and streamlined presentation. But the book is clearly not meant to be a reference or to be a showcase of exceptional concision and elegance. It is meant to be a book to learn from. Adding to this, the chapters are all full of examples, many of them quite interesting.I will concede that the writing and layout can be irritating at times. In particular, as has been pointed out many times before, the author does not isolate and highlight all definitions and corollaries. So this adds to the difficulty of using the book as a reference, and it even makes it somewhat unpleasant to read as a learning text at times. But to say that the author does not define things is simply wrong. (In the first chapter the author sketches an overview of the material contained in the text, and it consequently does not contain many formal definitions or proofs. By and large, however, all subsequent chapters are independent of this chapter. So if you are truly scandalized by someone attempting to give a loose overview of the subject, you are entirely free to skip this chapter and refer to it as necessary (which will be infrequently).)All and all, I thought this was a good first topology text. You are always given good examples to chew on while you are sorting out the technicalities. The problems are also generally good. While many are fairly straightforward, I have found that they are almost all at least thought provoking, and some develop new material entirely. And there are more than a handful of difficult ones.Finally, it should be emphasized that one can realistically be introduced to the rudiments of wide range of topics in a single semester: general topology, identification spaces, topological groups, the fundamental group, triangulations (including Seifert-Van Kampen), and simplicial homology. (To be clear, the book contains more than that, but I am only outlining what could be done in about 13 weeks.) Moreover, unlike some texts which are only meant to give the flavor of a subject to undergraduates, I have found that the foundations set by this books were substantial enough to build on.

Some very important definitions and concepts are hidden in the text. Formatting of the text needs improvement. Other than that, the explanations are amazing. And probably the best introduction to topology from the pedagogical points of view.

I would recommend reading with a highlighter and marking up a lot of the text because many definitions, points of interest, etc... are not set apart from regular text and it can be difficult locating the information you want/need to know on a particular page because of this. I have already highlighted a good deal of the book so that I can flip through the pages quickly and locate what I need.There are plenty of exercises in the book of easy to medium difficulty, but certainly not many that I would call "hard."The text is easy to read even if it is not organized as well as Munkres book. I don’t think this is a book anyone would regret getting for learning topology for the first time, but as the title clearly indicates, this is not a book for people taking a second course in topology.

As other reviewers said, the book is useless as a reference because it introduces definitions in the paragraph with no bold typeface or offsetting. It makes a good effort at developing an ’intuition’ for topology, but I don’t think this is strong enough to overcome the weak organization.

This text is very very difficult to read for people like me, your average topology student. A difficult subject to grasp, the layout of this book simply does not help organize the material. I have purchased several other books, that while they don’t make topology easy, at least make it digestable. Pass on this book and go with Munkres.

I just love this book. I happened to click on this page only to get the reference correct so I could cite it properly, and was shocked to see some negative reviews: I was sure it would get nothing but 5s!So I am writing this only to counterbalance those negative reviews, with which I disagree completely, and to reinforce the positive ones, which I agree with in all respects and will therefore not repeat. I came upon this book when, as a researcher with a good analysis and dynamics background, I wanted to learn more topology myself, and alsowanted a text to teach from. I was put off by the standard Algebraic Topology texts, which to me were too algebraic and abstract, and this was strongly recommended to me by a grad student in Kleinian groups just finishing his doctorate, as being beautifully written while providing more contact with the geometry. It was the perfect answer, and I only wish I’d encountered it earlier!In fact I’ve taught from it twice, once an undergrad course and once a grad course, and would very happily do so again. It is very carefully and

beautifully written, and I don’t recall finding any mistakes.The book, and the exercises, appear informal and hence simple, but this is deceptive: both are quite deep. For self-study this is an excellent choice, and if you have the time, you can really read the book and study it thoroughly from page one.I did most of the exercises myself (and assigned many for the students) and found them meaningful, challenging but doable- at just the right level.The book starts in Ch 1 with some already interesting topology and in Ch 2,3, 4 gives a review of the point-set topology, all the while developing the reader’s geometric intuition in preparation for what is to come. This part will be useful and fascinating even for those who think they know it all already.My only complaint is I would wish for a second volume which would go deeper into homology theory, while referring to say combinatorial group theory and knot theory as applications and examples. But then again, there are many excellent texts to choose from once one has this under one’s belt!