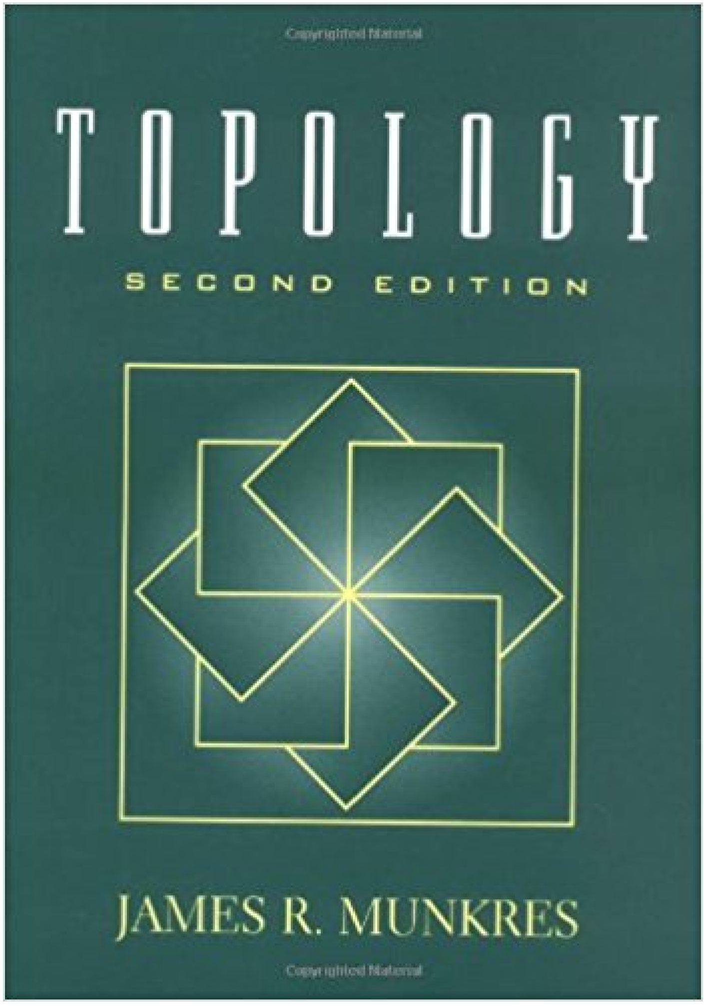
Topology (2nd Edition)



Synopsis

This introduction to topology provides separate, in-depth coverage of both general topology and algebraic topology. Includes many examples and figures.   GENERAL TOPOLOGY. Set Theory and Logic. Topological Spaces and Continuous Functions. Connectedness and Compactness. Countability and Separation Axioms. The Tychonoff Theorem. Metrization Theorems and paracompactness. Complete Metric Spaces and Function Spaces. Baire Spaces and Dimension Theory. ALGEBRAIC TOPOLOGY. The Fundamental Group. Separation Theorems. The Seifert-van Kampen Theorem. Classification of Surfaces. Classification of Covering Spaces. Applications to Group Theory.   For anyone needing a basic, thorough, introduction to general and algebraic topology and its applications.

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Customer Reviews

This introduction to topology provides separate, in-depth coverage of both general topology and algebraic topology. Includes many examples and figures. GENERAL TOPOLOGY. Set Theory and Logic. Topological Spaces and Continuous Functions. Connectedness and Compactness. Countability and Separation Axioms. The Tychonoff Theorem. Metrization Theorems and paracompactness. Complete Metric Spaces and Function Spaces. Baire Spaces and Dimension Theory. ALGEBRAIC TOPOLOGY. The Fundamental Group. Separation Theorems. The Seifert-van Kampen Theorem. Classification of Surfaces. Classification of Covering Spaces. Applications to Group Theory. For anyone needing a basic, thorough, introduction to general and algebraic

topology and its applications.

I learned general topology from the 1st edition red hardcover. I sold it back to the college bookstore thinking that Kelley which is only a little more demanding than Munkres would suffice. The most complicated theorem I reasoned I would ever have occasion to need was the Nagata-Smirnov Metrization Theorem which I understood in Munkres as well as in Kelley. Munkres also does the Smirnov Metrization Theorem which relies more on paracompactness. But Kelley does Moore-Smith convergence and nets-a way of doing topology with sequences, and only gives a reference for Smirnov. The Munkres text gave a brief introduction to homotopy and the fundamental group-Kelley none. Yet except for Smirnov Kelley seemed to have more point-set topology even proving the equivalence of the axiom of choice to Zorn’s Lemma in set theory. Well I got nostalgic for Smirnov and Munkres added in the 2nd edition more material on the fundamental group including even Seifert-Van Kampen, pretty much the equivalent of the famous Massey text. The price was right so I bought it.This text is excellent for self study assuming you’ve taken an analysis course and followed the proofs enough to do reasonably well in the exercises (when you screwed up-you figured out why.). General or point set topology is essentially math analysis distilled to its basic constructs and arguments (proof forms). Great theorems in analysis become great ideas in general topology. One theorem I’ve oft repeated is that a metric space is compact if and only if every infinite sequence (in it) has a limit point(in it)-or point of accumulation-this theorem is the prototype for the notion of sequential compactness. You’ll see arguments from analysis repeated or called upon throughout-same friends just different clothes on them.

For a first course in topology this book is by an order of magnitude better than anything else. Topology is a different enough way of thinking than earlier math that you probably need to follow a course to learn the subject, but if you can learn the subject by yourself anywhere it is from this book. Most of this book is about point set topology, but there are also good chapters on the fundamental group and covering spaces. But an instructor should wallow in the point set topology and not hurry to the algebraic topology, because this is a language that needs to learned thoroughly before using it as a tool.Even though this is an introduction I still look up proofs in it for things like the Tietze extension theorem, the StoneÃƒÂ¢Ã â ¬Ã â œÃƒâ Ã Å’ech compactification, and the compact-open topology. A book at one level higher, which has material not contained in Munkres, is Willard,Ã Â General Topology (Dover Books on Mathematics). An example of a theorem that is proved in Willard but not Munkres is that a product of *continuum* many Hausdorff spaces each with at least two points is separable if and only if each factor is separable (Theorem 16.4 in Willard). Willard is also better for the topology of function spaces. But Munkres is much easier to learn from and Munkres should always be used rather than Willard for a first course.

This book is awesome. It has probably been my favorite textbook to date. I used it in class but if you find a syllabus with homework sets, it would be perfect for self study. It is extremely thoughtful in its presentation and extraordinarily clear. Every time I got stuck, it was due to me forgetting something covered earlier, and I could go back and sort out any confusion, all within the book.Additionally, I found the problems just a joy to work. They were very good at developing and then building understanding.

One of the best math books that I have ever read. This book is so well written. Hats off to James Munkres because I didn’t know a math textbook could be so well written and enjoyable to read. Now the material isn’t easy for some, and it is up to the reader to study and learn the material. However, Munkres does an amazing job of writing the book in a a way such that the reader can read this book cover to cover and not feel overwhelmed and confused. Examples are clear, and everything flows. A joy to read!

I originally used this text in my undergraduate topology class. In the time since then, I have repeatedly returned to this book for reference. While I am specializing in algebraic number theory and algebraic geometry, I find that minor topological considerations still arise fairly often. I also used Munkres as my primary object of study for the topology qualifying exam.As a textbook, Munkres is clear and precise. He clearly states definitions and theorems, and provides enough examples to get a feel for their usage. The exercises are varied, but none were excessively hard, and they provide a good foundation to understand the flavor of topology. The prose is also very crisp and clear, and it provides motivation without had-holding and there is no needless obfuscation or verbosity. Having looked at many topology texts over the years, this is undoubtedly my favorite as a text. I would venture to say that this is the best introductory topology book yet written.As a reference, Mukres is still great. It isn’t as great a reference as it is a textbook, but it is still wonderful. The book’s organization and clarity, which aids its function as a textbook, serves the reference user well. Additionally, it is fairly comprehensive insofar as basic point-set and algebraic topology are concerned. My one problem with Munkres as a reference: it is severely lacking with respect to manifolds and differential topology, even in their most basic form. Still, it is so wonderfully clear with respect to basic point-set and algebraic topology that I can't imagine wanting another book to fill in reference for those basic areas.Seriously, this is THE book to learn topology, and then it should be kept around as a reference.

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