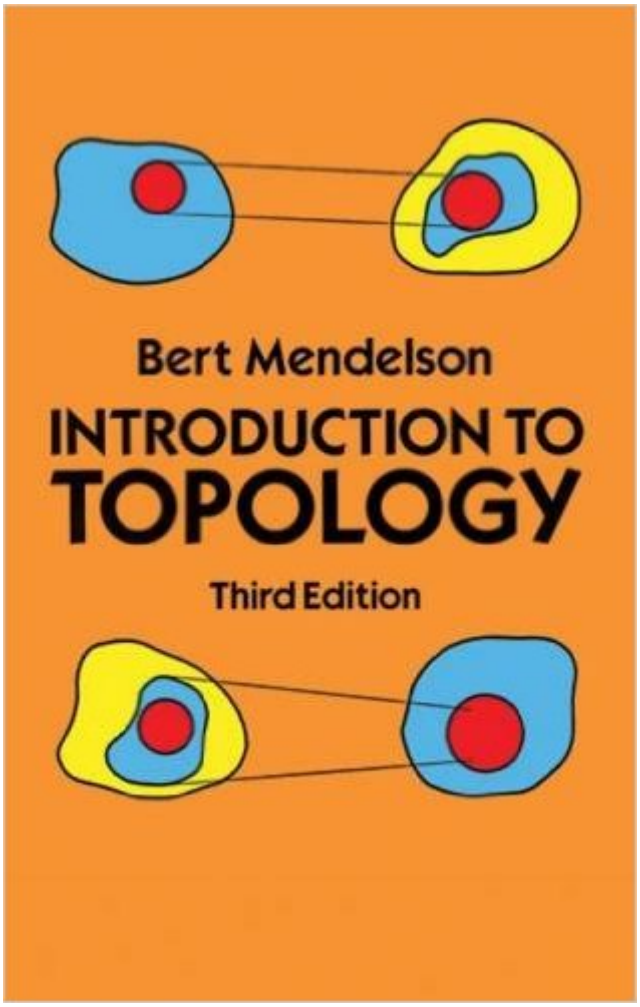
Introduction To Topology: Third Edition (Dover Books On Mathematics)



Synopsis

Highly regarded for its exceptional clarity, imaginative and instructive exercises, and fine writing style, this concise book offers an ideal introductionÂ to the fundamentals of topology. Originally conceived as a text for a one-semester course, it is directed to undergraduate students whose studies of calculus sequence have included definitions and proofs of theorems. The book's principal aim is to provide a simple, thorough survey of elementary topics in the study of collections of objects, or sets, that possess a mathematical structure.The author begins with an informal discussion of set theory in Chapter 1, reserving coverage of countability for Chapter 5, where it appears in the context of compactness. In the second chapter Professor Mendelson discusses metric spaces, paying particular attention to various distance functions which may be defined on Euclidean n-space and which lead to the ordinary topology.Chapter 3 takes up the concept of topological space, presenting it as a generalization of the concept of a metric space. Chapters 4 and 5 are devoted to a discussion of the two most important topological properties: connectedness and compactness. Throughout the text, Dr. Mendelson, a former Professor of Mathematics at Smith College, has included many challenging and stimulating exercises to help students develop a solid grasp of the material presented.

Book Information

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Customer Reviews

I was not a mathematics major, and only in recent years have I ventured into abstract mathematics. I was motivated to learn about topology as an aid to understanding a particular 3-D earth modeling

application.I read Introduction to Topology in three stages: as a review of set theory and metric spaces (chapters 1 and 2), then as an introduction to topology (chapter 3), and lastly as a detailed look at two important topological properties, connectedness (chapter 4) and compactness (chapter 5). I had previously read (and reviewed) another book titled Metric Spaces by Victor Bryant, but Mendelson is my first serious look at topology.My reading of Mendelson - a 200-page text - required about 100 hours, substantially longer than the 40 to 60 hours estimated by an earlier reviewer. No solutions are provided for the section problems, which are generally proofs, not explicit problems.The first chapter provides a concise overview of set theory and functions that is essential for Mendelson's later chapters on subsequent set-theoretic analysis of metric spaces and topology.The second chapter is a solid introduction to metric spaces with good discussions on continuity, open balls and neighborhoods, limits from a metric space perspective, open sets and closed sets, subspaces, and equivalence of metric spaces. Chapter 2 concludes with a brief introduction to Hilbert space.The third chapter introduces topological spaces as a generalization of metric spaces, and many theorems are largely restatements of the metric space theorems derived in chapter 2. I was thankful for this approach.

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