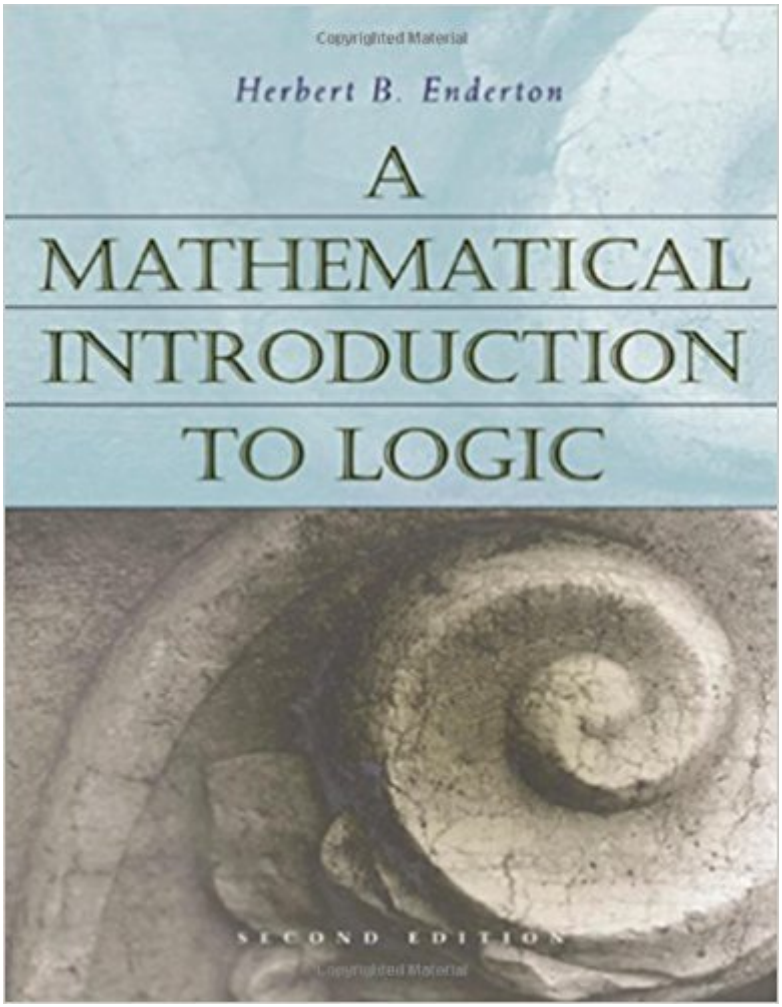
A Mathematical Introduction To Logic, Second Edition



Synopsis

A Mathematical Introduction to Logic, Second Edition, offers increased flexibility with topic coverage, allowing for choice in how to utilize the textbook in a course. The author has made this edition more accessible to better meet the needs of today's undergraduate mathematics and philosophy students. It is intended for the reader who has not studied logic previously, but who has some experience in mathematical reasoning. Material is presented on computer science issues such as computational complexity and database queries, with additional coverage of introductory material such as sets. * Increased flexibility of the text, allowing instructors more choice in how they use the textbook in courses. * Reduced mathematical rigour to fit the needs of undergraduate students

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Customer Reviews

Reasons for This Book's Success"Rigor, integrity and coherence of overall purpose, introducing students to the practice of logic . . ."--Douglas Cannon, University of Washington"The book is clearly and carefully written. I adopted this text because of its detailed and rigorous treatment of the predicate calculus, detailed and optimal treatment of the incompleteness phenomena, standard notation as developed by the Berkeley school."--Karel Prikry, University of Minnesota"It is mathematically rigorous [and] it has more examples than other books . . . I definitely would use a new edition of this book." --Sun-Joo Chin, University of Notre Dame

About this bookAn accessible, flexible introduction to the subject of mathematical logic, the second

edition of this popular and widely-adopted text has been revised to be appropriate for courses enrolling either advanced undergraduates or graduate students. Like the First Edition, this book is an introduction to the concepts of proof, truth, and computability. This Second Edition has additional examples and explanations to help the reader. Footnotes indicate optional paths through the material that the user might wish to take. Topics relevant to computer science, such as finite models, are also now included.Reasons for This Book's Success"Rigor, integrity and coherence of overall purpose, introducing students to the practice of logic . . ."--Douglas Cannon, University of Washington"The book is clearly and carefully written. I adopted this text because of its detailed and rigorous treatment of the predicate calculus, detailed and optimal treatment of the incompleteness phenomena, standard notation as developed by the Berkeley school."--Karel Prikry, University of Minnesota"It is mathematically rigorous [and] it has more examples than other books . . . I definitely would use a new edition of this book."--Sun-Joo Chin, University of Notre Dame

Wonderful introduction

Some of the pages have ink stains, probably from printing issues. It's not that bad, just a little unpleasant. But for the cost, I was expecting a new book, not stained.

I have been using this for several semesters. I like all about it except for a few exercises that are unclear to me and I cannot get in touch with the author. The website doesn't do anything for me either.

This is a great book as far as content goes. I would give the book five stars if it wasn't for the poor binding these books seem to have.I purchased this book for a course in logic. When I cracked it open the first time, the binding from the spine of the book began to separate from the cover (along with the paper holding it in). I am not the only person experiencing this problem as well. Of two friends of mine in the course, similar issues have happened.== Edit ==I forgot to mention that I contacted and was offered either a 10% refund, or a replacement.

My problem is with the quality, not the contents. Through the first chapter, I actually quite liked the author's delivery of the material.I've looked at a version at a library, and at my local textbook store, and those versions were definitely quality made. However, when I found the same book on for about $40 to $50 less, I thought it would be a great buy. On the contrary, this version was made

much more cheaply (hence the lower cost, I'm sure). The material for the pages isn't as nice, and the binding was so bad, that within the first week it had completely ripped of in front, merely from opening it.The book is great, if you get the quality version. I guess you get what you pay for, but still at $60, I would expect something a little better.

The best book I've read so far on the topic. Book also has a last chapter on second-order logic. Irritating though is the use of exercises in the text and of course no answers for them.

This is easily the BEST intro. logic book every written. (Yes, I sound horribly biased.) This books covers everything from Sentential Logic to 1st Order to Recursion to a bit of 2nd Order Logic. It's the only MATH book on logic out there that is easy to understand and yet formal enough to be considered "mathematical." Even the treatment of Sentential Calc. brings interesting tidbits (ternary connectives, completeness, compactness, etc). Truth and models (the heart of it) are treated incredibly clearly. Extra topics such as interpretations between theories and nonstandard analysis keep things exciting (for a math book). His treatment of undecidability is well-written and lucid. The second order stuff is fun.I loved this book. As far as math teachers go, Enderton is top notch. Even someone as unacquainted with math as I was when I studied the book (and as I still am now, I guess) understood what was going on. To be honest though, I did have one advantage, I was a student of the master, Enderton, himself. I learned so much about logic (and math in general) from this great book. I was fortunate enough to study some more with Enderton throughout my years as a student. Of course, I went through his "Elements of Set Theory" which is also fantastic. Too bad he never wrote a book on model theory...But, you never know; maybe someday he will.

There are two types of mathematical texts: source code (definition-theorem-proof-remark-definition-...), and books intended to educate via explanations of where we came from, where we're going, and why we should care. Enderton's (2nd edition) text is an actual *book,* albeit not a superb one (compare to Simpson's free text on Mathematical Logic at [...], which fits my definition of "source code"). For this he automatically earns 2 stars -- though in any field except mathematics, this would earn him nothing.The prose itself is easy to follow, and makes suitable use of cross-references -- you will not find yourself stumped for 30 minutes trying to substantiate a casual statement made half-way through the book, as with some mathematical authors. High-minded ideas such as effectiveness and decidability appear (briefly) at the end of chapter one, so you don't have to read 180 pages before any "cool" things are presented, and there

are occasional (but too few) sentences explaining what the goal of a formalism is before it is developed. Chapter 1, which covers sentential (propositional) logic, also has a short section on applications to circuit design, providing some much-welcome motivation for the material. Model theory is also integrated with the discussion of first-order logic in chapter 2, which is preferable to having it relegated to a later section as in some texts. The book also gives heavy emphasis to computational topics, and even gets into second-order logic in the final chapter -- a very complete coverage for such a small introductory text. These virtues combine to earn it a third star.My primary complaint is the manner in which rigor is emphasized in the text to the neglect (rather than supplement) of a coherent big picture -- losing two full stars.For instance, in chapter 1, 10 pages are spent very early on induction and recursion theorems, to put intuitive ideas like "closure" on firm ground. And yet the words "deduction" and "completeness" -- arguably the whole reason we want to study logic in the first place -- do not appear until after the entirety of the rigorous discussion of propositional logic, and even then only as an exercise. Most readers will reach page 109 before realizing that logicians care about deduction or soundness at all.41 pages from chapter 2 are given over to defining models/structures, truth, definability, homomorphisms and parsing in first-order logic. These complex and highly detailed definitions remove ambiguity from mathematical discourse, and are essential -- but are best viewed as fungible reference material. After all, many alternative renditions of the formalism exist. This is not the essence of mathematical logic -- but to Enderton, they appear to be the field’s first-class content.I found it difficult to see the forest for the trees in this book. I would have much preferred to see examples of deduction proofs -- with exercises in making use of axioms of natural deduction, discharged assumptions, etc -- and a brief discussion of completeness up front. *Then* I would have enjoyed being told "okay, now that we’ve seen how FOL works in practice, it’s important to note that we have not yet set it on a rigorous footing. The next three sections will set to that task via many small steps. We’ll see how it all comes together in the end." It is amazing what a difference just a few sentences like that can make in a book on mathematics -- guiding your reader is vital.I would also have loved to see some more high-level discussion on the history of FOL and justification for it’s prominence, the decline of syllogistic logic, the origins of Boolean algebra, etc. But perhaps that is too much to ask, since mathematics educators are (uniquely in academia) not accustomed to contextualizing their material as part of a wider intellectual enterprise.

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