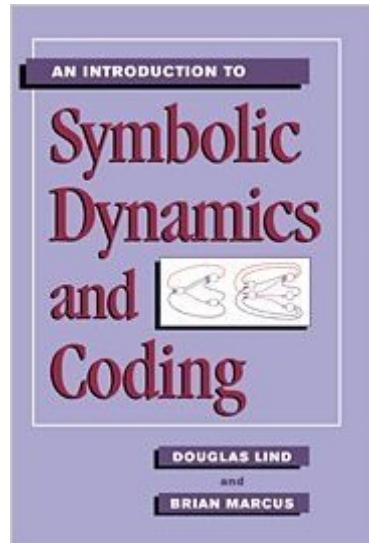


The book was found

An Introduction To Symbolic Dynamics And Coding



Synopsis

Symbolic dynamics is a rapidly growing area of dynamical systems. Although it originated as a method to study general dynamical systems, it has found significant uses in coding for data storage and transmission as well as in linear algebra. This book is the first general textbook on symbolic dynamics and its applications to coding. Mathematical prerequisites are relatively modest (mainly linear algebra at the undergraduate level) especially for the first half of the book. Topics are carefully developed and motivated with many examples, and there are over 500 exercises to test the reader's understanding. The last chapter contains a survey of more advanced topics, and a comprehensive bibliography is included. This book will serve as an introduction to symbolic dynamics for advanced undergraduate students in mathematics, engineering, and computer science.

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Customer Reviews

It is late March as I write this. I have been reading the book since mid-January and have made it to page 77. This is in spite of the fact that I put in about 10 hours a week on it. The bulk of the time is spent learning the language for new concepts. I am pleased with the book in that it does an excellent job of foreshadowing those concepts in the wonderful examples and in the exercises. I would give the advice to do as many of the exercises as possible while continuing to read ahead. If you do this, you will be prepared for what is to come, but you will be less likely to get bogged down. I began this book because I wanted to understand entropy. It looks as if I will be well-prepared for that when I get to the topic in a few more weeks. It is only about 20 or so more pages away.

I was introduced to symbolic dynamics through a preliminary study of chaotic dynamical systems, and to satisfy my interest in the subject, took an independent study course on what I lovingly refer to as "Symba" as an undergraduate, using this textbook. Doug Lind and Brian Marcus have done a fantastic job at introducing and motivating the subject, and have placed some very well thought-out exercises after each section. The text gradually advances to some heavier material, so it's fit for undergraduates and graduate students who have a good grasp of abstract algebra (and maybe some graph theory). Though some of the examples are a bit outdated now (e.g. the section dealing with the Road Coloring Problem which has been solved), they remain quite illustrative and interesting.

I bought my first copy of this book several years ago and worked through the first two chapters just for fun. Plenty of good problems that are accessible to undergrads but also challenging. I used the book for an undergrad reading course and it went very well. This year I had to purchase another copy of Lind and Marcus because I lost my first one. I am working with a graduate student reading Kitchen's book and it is not long on detail. Lind and Marcus really helped us out a lot. In future I think I would start with Lind and Marcus though Kitchen's book has a lot to offer, too. They are not the same book in any way. I don't believe there are any accessible books on symbolic dynamics except this one and thankfully it's really well written. I would recommend it to anyone.

I used this book in a senior level math course named "Symbolic Dynamics". At the time (and still to this day I believe), this was the ONLY undergraduate text available on this subject. Overall this is a good book, but it IS (as another reviewer put it) somewhat densely written and does follow the path of proposition, theorem, corollary; proposition, theorem, corollary, with some examples spaced between them. The examples overall are OK but not great. More examples would have helped. The questions at the end of each section are also OK but some of them are quite tough. Even though this book was I believe written for senior level undergraduates, it easily serves as a graduate textbook (In fact half of the students in my class were taking the course at a graduate level) and takes a lot of time and effort to fully grasp for an average math student. However the subject material itself is somewhat difficult in my opinion (although enjoyable). If you're an honors student then you might have an easier time with this book. I did however enjoy using this book as overall it was well written (and it was the only undergraduate text available!).

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