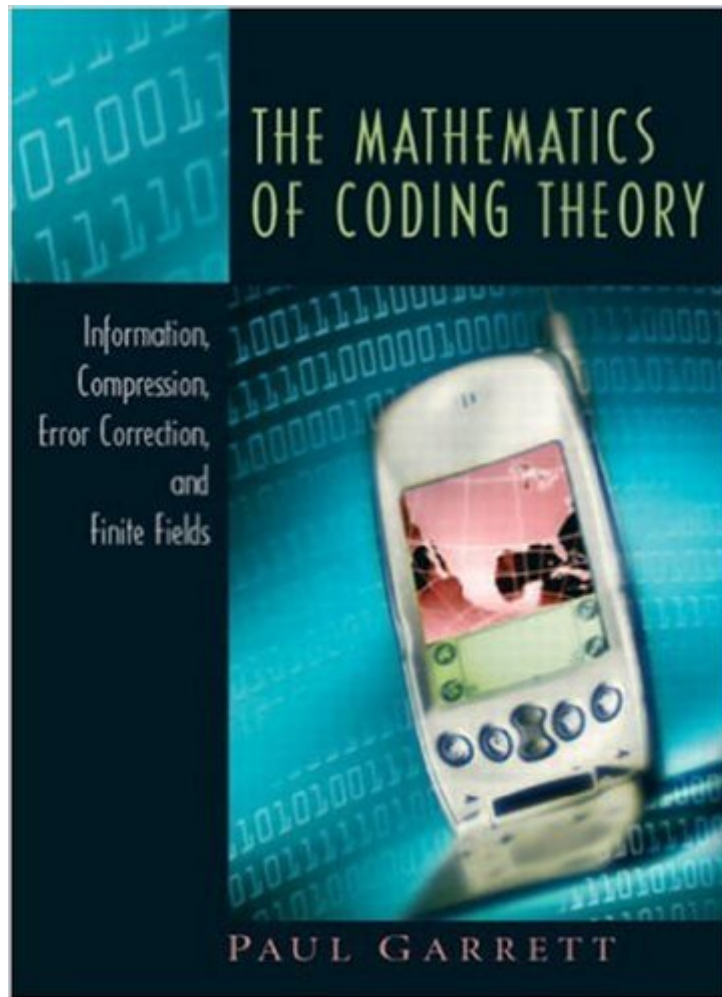


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# The Mathematics Of Coding Theory: Information, Compression, Error Correction, And Finite Fields



## Synopsis

This book makes a very accessible introduction to a very important contemporary application of number theory, abstract algebra, and probability. It contains numerous computational examples throughout, giving learners the opportunity to apply, practice, and check their understanding of key concepts. KEY TOPICS Coverage starts from scratch in treating probability, entropy, compression, Shannon's theorems, cyclic redundancy checks, and error-correction. For enthusiasts of abstract algebra and number theory.

## Book Information

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## Customer Reviews

I took this course at the University of Minnesota (the author is a professor here) using this textbook. While the author does provide some good proofs of the mathematics behind coding theory, he provides very little in the way of practical, useful information. The chapters that actually have example problems have very few, and they are incredibly brief with little explanation given. There are a few answers in the back of the book, but often they are just the answer alone without any work or proof. Some of the exercises at the end of each chapter are impossible to complete using only the information available in the book.

I took this course at the U of Minn (where the author is a professor). He has a reputation of being a good professor and a good guy (and I have no reason to doubt it). Unfortunately, his book is very hard to understand. While packed chock full of information, it is written in a **very, very** dense

style. It makes a lot of assumptions about your prior knowledge and there are few examples to illustrate the theory. While this may be OK for a grad student in math (or even a bright senior), it is definitely not sufficient for a non-math major and most undergrads. For a much better book (although of more limited scope and rigor) check out Roman.

The Mathematics of Coding Theory written by Paul Garrett is the lecture textbook for Math 5251, U of Minnesota-Twin Cities. This book is well decorated and printing quality is also pretty nice. Prof. Andrew Odlyzko lectures this course every Spring, he is very strong in Mathematics and knowledgeable in coding. I think the lectures on the basis of this textbook are wonderful. Three in-class mid-terms together with a term paper, no final will make you happy. Some chapters are a bit difficult to understand, but in comprehensive this book is well written and applicable for both Math undergraduates and Engineering graduate students. You can search for the lecture notes from past semesters and come to office hours for having hints to solve textbook problems. Great deal!

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