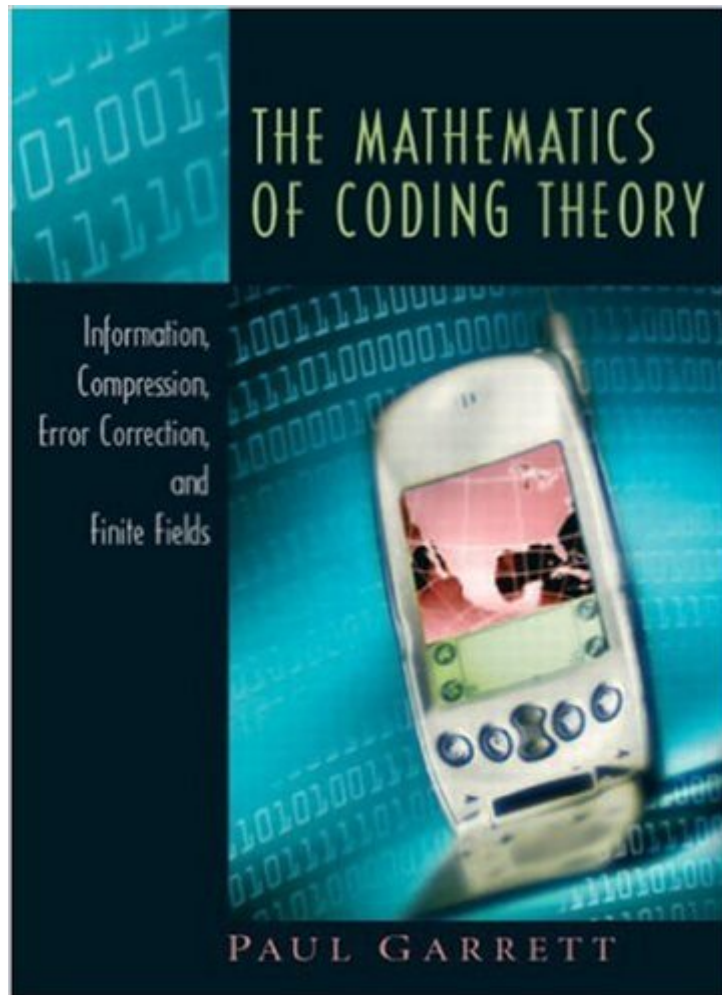# The Mathematics Of Coding Theory: Information, Compression, Error Correction, And Finite Fields

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 knowledgable 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!

The Mathematics of Coding Theory: Information, Compression, Error Correction, and Finite Fields Finite Fields, Coding Theory, and Advances in Communications and Computing (Lecture Notes in Pure and Applied Mathematics) Error-Correcting Codes and Finite Fields. Student Edition (Oxford Applied Mathematics and Computing Science Series) Error-Correcting Codes and Finite Fields (Oxford Applied Mathematics and Computing Science Series) Error-Correction Coding for Digital Communications (Applications of Communications Theory) Applications of Finite Fields (Institute of Mathematics and its Applications Conference Series, New Series) Sentence Correction GMAT Strategy Guide, 5th Edition (Manhattan GMAT Preparation Guide: Sentence Correction) How the Universe Got Its Spots: Diary of a Finite Time in a Finite Space The Theory of Information and Coding (Encyclopedia of Mathematics and its Applications No. 86) Fundamentals of Information Theory and Coding Design (Discrete Mathematics and Its Applications) Theory of Information Coding (Encyclopedia of Mathematics and its Applications) Introduction to Data Compression, Second Edition (The Morgan Kaufmann Series in Multimedia Information and Systems) Mrs. Fields Cookie Book: 100 Recipes from the Kitchen of Mrs. Fields Coding Interview Ninja: 50 coding questions with Java solutions to practice for your coding interview. Finite Mathematics and Calculus with Applications plus MyMathLab/MyStatLab -- Access Card Package (9th Edition) Finite Mathematics for Business, Economics, Life Sciences and Social Sciences (12th Edition) (Barnett) Coding Theory: The Essentials (Pure and Applied Mathematics : a Series of Monographs and Textbooks, 150) Handbook of Coding Theory, Volume 1: Part 1 : Algebraic Coding Origin,

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