

1. Record Nr.	UNINA9910299752703321
Autore	Ahlswede Rudolf
Titolo	Storing and Transmitting Data : Rudolf Ahlswede's Lectures on Information Theory 1 / / by Rudolf Ahlswede ; edited by Alexander Ahlswede, Ingo Althöfer, Christian Deppe, Ulrich Tamm
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-05479-1
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (X, 302 p. 6 illus.)
Collana	Foundations in Signal Processing, Communications and Networking, , 1863-8546 ; ; 10
Disciplina	003.54
Soggetti	Computer science - Mathematics Coding theory Information theory Mathematical Applications in Computer Science Coding and Information Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Words and Introduction of the Editors -- Preface -- 1.Introduction -- Part I Storing Data: 2.Data Compression -- 3.The Entropy as a Measure of Uncertainty -- 4.Universal Coding.- Part II Transmitting Data: 5. Coding Theorems and Converses for the DMC -- 6.Towards Capacity Functions -- 7.Error Bounds -- Part III Appendix: 8.Inequalities -- Part IV Supplement: Rudolf Ahlswede 1938-2010 -- Comments by Holger Boche -- Index -- Name Index.
Sommario/riassunto	The volume "Storing and Transmitting Data" is based on Rudolf Ahlswede's introductory course on "Information Theory I" and presents an introduction to Shannon Theory. Readers, familiar or unfamiliar with the technical intricacies of Information Theory, will benefit considerably from working through the book; especially Chapter VI with its lively comments and uncensored insider views from the world of science and research offers informative and revealing insights. This is the first of several volumes that will serve as a collected research documentation of Rudolf Ahlswede's lectures on information theory. Each volume includes comments from an invited well-known expert. Holger Boche

contributed his insights in the supplement of the present volume. Classical information processing concerns the main tasks of gaining knowledge, storage, transmitting and hiding data. The first task is the prime goal of Statistics. For the two next, Shannon presented an impressive mathematical theory called Information Theory, which he based on probabilistic models. The theory largely involves the concept of codes with small error probabilities in spite of noise in the transmission, which is modeled by channels. The lectures presented in this work are suitable for graduate students in Mathematics, and also in Theoretical Computer Science, Physics, and Electrical Engineering with background in basic Mathematics. The lectures can be used as the basis for courses or to supplement courses in many ways. Ph.D. students will also find research problems, often with conjectures, that offer potential subjects for a thesis. More advanced researchers may find the basis of entire research programs.
