1. Record Nr. UNINA9910782417203321

Autore	Applebaum David <1956->
Titolo	Probability and information : an integrated approach / / David Applebaum [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2008
ISBN	1-107-18810-5 0-511-65003-5 0-511-41330-0 0-511-57441-X 0-511-75526-0 0-511-41424-2
Edizione	[Second edition.]
Descrizione fisica	1 online resource (xvi, 273 pages) : digital, PDF file(s)
Disciplina	519.2
Soggetti	Probabilities Information theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Half-title; Title; Copyright; Contents; Preface to the second edition; Preface to the first edition; 1 Introduction; 2 Combinatorics; 3 Sets and measures; 4 Probability; 5 Discrete random variables; 6 Information and entropy; 7 Communication; 8 Random variables with probability density functions; 9 Random vectors; 10 Markov chains and their entropy; Exploring further; Appendix 1: Proof by mathematical induction; Appendix 2: Lagrange multipliers; Appendix 3: Integration of exp -12x2; Appendix 4: Table of probabilities associated with the standardnormal distribution Appendix 5: A rapid review of matrix algebraSelected solutions; Index
Sommario/riassunto	This updated textbook is an excellent way to introduce probability and information theory to new students in mathematics, computer science, engineering, statistics, economics, or business studies. Only requiring knowledge of basic calculus, it starts by building a clear and systematic foundation to the subject: the concept of probability is given particular attention via a simplified discussion of measures on Boolean algebras. The theoretical ideas are then applied to practical areas such as

statistical inference, random walks, statistical mechanics and communications modelling. Topics covered include discrete and continuous random variables, entropy and mutual information, maximum entropy methods, the central limit theorem and the coding and transmission of information, and added for this new edition is material on Markov chains and their entropy. Lots of examples and exercises are included to illustrate how to use the theory in a wide range of applications, with detailed solutions to most exercises available online for instructors.