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Titolo	Measure-Theoretic Probability : With Applications to Statistics, Finance, and Engineering / / by Kenneth Shum
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ISBN	3-031-49830-5
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (262 pages)
Collana	Compact Textbooks in Mathematics, , 2296-455X
Disciplina	519.2
Soggetti	Probabilities Measure theory Probability Theory Applied Probability Measure and Integration
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- Beyond discrete and continuous random variables -- Probability spaces -- Lebesgue–Stieltjes measures -- Measurable functions and random variables -- Statistical independence -- Lebesgue integral and mathematical expectation -- Properties of Lebesgue integral and convergence theorems -- Product space and coupling -- Moment generating functions and characteristic functions -- Modes of convergence -- Laws of large numbers -- Techniques from Hilbert space theory -- Conditional expectation -- Levy's continuity theorem and central limit theorem -- References -- Index.
Sommario/riassunto	This textbook offers an approachable introduction to measure-theoretic probability, illustrating core concepts with examples from statistics and engineering. The author presents complex concepts in a succinct manner, making otherwise intimidating material approachable to undergraduates who are not necessarily studying mathematics as their major. Throughout, readers will learn how probability serves as the language in a variety of exciting fields. Specific applications covered include the coupon collector's problem, Monte Carlo integration in finance, data compression in information theory, and

more. Measure-Theoretic Probability is ideal for a one-semester course and will best suit undergraduates studying statistics, data science, financial engineering, and economics who want to understand and apply more advanced ideas from probability to their disciplines. As a concise and rigorous introduction to measure-theoretic probability, it is also suitable for self-study. Prerequisites include a basic knowledge of probability and elementary concepts from real analysis.