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2.5 Special Discrete Distributions; 2.5.1 Indicators; 2.5.2 The Binomial Distribution; 2.5.3 The Geometric Distribution; 2.5.4 The Poisson Distribution; 2.5.5 The Hypergeometric Distribution; 2.5.6 Describing Data Sets; 2.6 The Exponential Distribution; 2.7 The Normal Distribution; 2.8 Other Distributions; 2.8.1 The Lognormal Distribution; 2.8.2 The Gamma Distribution; 2.8.3 The Cauchy Distribution 2.8.4 Mixed Distributions 2.9 Location Parameters; 2.10 The Failure Rate Function; 2.10.1 Uniqueness of the Failure Rate Function; Problems; 3 Joint Distributions; 3.1 Introduction; 3.2 The Joint Distribution Function; 3.3 Discrete Random Vectors; 3.4 Jointly Continuous Random Vectors; 3.5 Conditional Distributions and Independence; 3.5.1 Independent Random Variables; 3.6 Functions of Random Vectors; 3.6.1 Real-Valued Functions of Random Vectors; 3.6.2 The Expected Value and Variance of a Sum; 3.6.3 Vector-Valued Functions of Random Vectors; 3.7 Conditional Expectation 3.7.1 Conditional Expectation as a Random Variable 3.7.2 Conditional Expectation and Prediction; 3.7.3 Conditional Variance; 3.7.4 Recursive Methods; 3.8 Covariance and Correlation; 3.8.1 The Correlation Coefficient; 3.9 The Bivariate Normal Distribution; 3.10 Multidimensional Random Vectors; 3.10.1 Order Statistics; 3.10.2 Reliability Theory; 3.10.3 The Multinomial Distribution; 3.10.4 The Multivariate Normal Distribution; 3.10.5 Convolution; 3.11 Generating Functions; 3.11.1 The Probability Generating Function; 3.11.2 The Moment Generating Function; 3.12 The Poisson Process 3.12.1 Thinning and Superposition Problems; 4 Limit Theorems; 4.1 Introduction; 4.2 The Law of Large Numbers; 4.3 The Central Limit Theorem; 4.3.1 The Delta Method; 4.4 Convergence in Distribution; 4.4.1 Discrete Limits; 4.4.2 Continuous Limits; Problems; 5 Simulation; 5.1 Introduction; 5.2 Random Number Generation; 5.3 Simulation of Discrete Distributions; 5.4 Simulation of Continuous Distributions; 5.5 Miscellaneous; Problems; 6 Statistical Inference; 6.1 Introduction; 6.2 Point Estimators; 6.2.1 Estimating the Variance; 6.3 Confidence Intervals 6.3.1 Confidence Interval for the Mean in the Normal Distribution with Known Variance

Sommario/riassunto

Praise for the First Edition "" . . . an excellent textbook . . . well organized and neatly written.""-Mathematical Reviews "" . . . amazingly interesting . . .""-Technometrics Thoroughly updated to showcase the interrelationships between probability, statistics, and stochastic processes, Probability, Statistics, and Stochastic Processes, Second Edition prepares readers to collect, analyze, and characterize data in their chosen fields. Beginning with three chapters that develop probability theory and introdu