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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
