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Grouped Data; 3.A.1 The Arithmetic Mean; 3.A.2 The Median; 3.A.3 The Mode; 3.A.4 The Standard Deviation; 3.A.5 Quantiles (Quartiles, Deciles, and Percentiles); 4 Essentials of Probability; 4.1 Set Notation; 4.2 Events within the Sample Space; 4.3 Basic Probability Calculations; 4.4 Joint, Marginal, and Conditional Probability; 4.5 Sources of Probabilities Exercises; 5 Discrete Probability Distributions and Their Properties; 5.1 The Discrete Probability Distribution; 5.2 The Mean, Variance, and Standard Deviation of a Discrete Random Variable; 5.3 The Binomial Probability Distribution; 5.3.1 Counting Issues; 5.3.2 The Bernoulli Probability Distribution; 5.3.3 The Binomial Probability Distribution; Exercises; 6 The Normal Distribution; 6.1 The Continuous Probability Distribution; 6.2 The Normal Distribution; 6.3 Probability as an Area Under the Normal Curve; 6.4 Percentiles of the Standard Normal Distribution and Percentiles of the Random Variable X Exercises; Appendix 6.A The Normal Approximation to Binomial Probabilities; 7 Simple Random Sampling and the Sampling Distribution of the Mean; 7.1 Simple Random Sampling; 7.2 The Sampling Distribution of the Mean; 7.3 Comments on the Sampling Distribution of the Mean; 7.4 A Central Limit Theorem; Exercises; Appendix 7.A Using a Table of Random Numbers; Appendix 7.B Assessing Normality via the Normal Probability Plot; Appendix 7.C Randomness, Risk, and Uncertainty; 7.C.1 Introduction to Randomness; 7.C.2 Types of Randomness; 7.C.2.1 Type I Randomness; 7.C.2.2 Type II Randomness; 7.C.2.3 Type III Randomness; 7.C.3 Pseudo-Random Numbers; 7.C.4 Chaotic Behavior; 7.C.5 Risk and Uncertainty; 8 Confidence Interval Estimation of μ ; 8.1 The Error Bound on $\bar{X}$ as an Estimator of μ ; 8.2 A Confidence Interval for the Population Mean (σ Known); 8.3 A Sample Size Requirements Formula; 8.4 A Confidence Interval for the Population Mean (σ Unknown); Exercises; Appendix 8.A A Confidence Interval for the Population Median MED ; 9 The Sampling Distribution of a Proportion and its Confidence Interval Estimation

Sommario/riassunto

A concise, easily accessible introduction to descriptive and inferential techniques. Statistical Inference: A Short Course offers a concise presentation of the essentials of basic statistics for readers seeking to acquire a working knowledge of statistical concepts, measures, and procedures. The author conducts tests on the assumption of randomness and normality, provides nonparametric methods when parametric approaches might not work. The book also explores how to determine a confidence interval for a population median while also providing coverage of ratio esti