

1. Record Nr.	UNINA9910555091703321
Autore	Bartoszynski Robert
Titolo	Probability and statistical inference // Robert Bartoszynski, Magdalena Niewiadomska-Bugaj
Pubbl/distr/stampa	Hoboken, New Jersey : , : John Wiley & Sons, Inc., , [2021] ©2021
ISBN	1-119-24381-5 1-119-24382-3 1-119-24383-1
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (595 pages)
Collana	Wiley Series in Probability and Statistics Ser.
Disciplina	519.54
Soggetti	Probabilities Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- Preface to Third Edition -- Preface to Second Edition -- About the Companion Website -- Chapter 1 Experiments, Sample Spaces, and Events -- 1.1 Introduction -- 1.2 Sample Space -- 1.3 Algebra of Events -- 1.4 Infinite Operations on Events -- Chapter 2 Probability -- 2.1 Introduction -- 2.2 Probability as a Frequency -- 2.3 Axioms of Probability -- 2.4 Consequences of the Axioms -- 2.5 Classical Probability -- 2.6 Necessity of the Axioms* -- 2.7 Subjective Probability* -- Chapter 3 Counting -- 3.1 Introduction -- 3.2 Product Sets, Orderings, and Permutations -- 3.3 Binomial Coefficients -- 3.4 Multinomial Coefficients -- Chapter 4 Conditional Probability, Independence, and Markov Chains -- 4.1 Introduction -- 4.2 Conditional Probability -- 4.3 Partitions -- Total Probability Formula -- 4.4 Bayes' Formula -- 4.5 Independence -- 4.6 Exchangeability -- Conditional Independence -- 4.7 Markov Chains* -- Chapter 5 Random Variables: Univariate Case -- 5.1 Introduction -- 5.2 Distributions of Random Variables -- 5.3 Discrete and Continuous Random Variables -- 5.4 Functions of Random Variables -- 5.5 Survival and Hazard Functions -- Chapter 6 Random Variables: Multivariate Case -- 6.1

Bivariate Distributions -- 6.2 Marginal Distributions -- Independence -- 6.3 Conditional Distributions -- 6.4 Bivariate Transformations -- 6.5 Multidimensional Distributions -- Chapter 7 Expectation -- 7.1 Introduction -- 7.2 Expected Value -- 7.3 Expectation as an Integral\* -- Riemann Integral -- Lebesgue Integral -- Riemann-Stieltjes Integral -- Lebesgue-Stieltjes Integral -- Lebesgue Integral: General Case -- 7.4 Properties of Expectation -- 7.5 Moments -- 7.6 Variance -- 7.7 Conditional Expectation -- 7.8 Inequalities -- Chapter 8 Selected Families of Distributions -- 8.1 Bernoulli Trials and Related Distributions. Binomial Distribution -- Geometric Distribution -- Negative Binomial Distribution -- 8.2 Hypergeometric Distribution -- 8.3 Poisson Distribution and Poisson Process -- 8.4 Exponential, Gamma, and Related Distributions -- 8.5 Normal Distribution -- 8.6 Beta Distribution -- Chapter 9 Random Samples -- 9.1 Statistics and Sampling Distributions -- 9.2 Distributions Related to Normal -- 9.3 Order Statistics -- 9.4 Generating Random Samples -- 9.5 Convergence -- Weak Laws of Large Numbers -- Strong Laws of Large Numbers -- 9.6 Central Limit Theorem -- Chapter 10 Introduction to Statistical Inference -- 10.1 Overview -- 10.2 Basic Models -- 10.3 Sampling -- 10.4 Measurement Scales -- Chapter 11 Estimation -- 11.1 Introduction -- 11.2 Consistency -- 11.3 Loss, Risk, and Admissibility -- 11.4 Efficiency -- 11.5 Methods of Obtaining Estimators -- Method of Moments Estimators -- Maximum Likelihood Estimators -- Least Squares Estimators -- Robust Estimators -- 11.6 Sufficiency -- 11.7 Interval Estimation -- Confidence Intervals -- Bootstrap Intervals -- Chapter 12 Testing Statistical Hypotheses -- 12.1 Introduction -- 12.2 Intuitive Background -- 12.3 Most Powerful Tests -- 12.4 Uniformly Most Powerful Tests -- 12.5 Unbiased Tests -- 12.6 Generalized Likelihood Ratio Tests -- 12.7 Conditional Tests -- 12.8 Tests and Confidence Intervals -- 12.9 Review of Tests for Normal Distributions -- OneSample Procedures -- Hypotheses About the Variance, Mean Known -- Hypotheses About the Variance, Mean Unknown -- TwoSample Procedures -- Large Sample Tests for Binomial Distribution -- 12.10 Monte Carlo, Bootstrap, and Permutation Tests -- Monte Carlo Tests -- Bootstrap Tests -- Permutation Tests -- Chapter 13 Linear Models -- 13.1 Introduction -- 13.2 Regression of the First and Second Kind -- 13.3 Distributional Assumptions -- 13.4 Linear Regression in the Normal Case. 13.5 Testing Linearity -- 13.6 Prediction -- 13.7 Inverse Regression -- 13.8 BLUE -- 13.9 Regression Toward the Mean -- 13.10 Analysis of Variance -- 13.11 OneWay Layout -- 13.12 TwoWay Layout -- 13.13 ANOVA Models with Interaction -- 13.14 Further Extensions -- Chapter 14 Rank Methods -- 14.1 Introduction -- 14.2 Glivenko-Cantelli Theorem -- 14.3 Kolmogorov-Smirnov Tests -- OneSample Kolmogorov-Smirnov Test -- TwoSample Kolmogorov-Smirnov Test -- 14.4 OneSample Rank Tests -- 14.5 TwoSample Rank Tests -- 14.6 Kruskal-Wallis Test -- Chapter 15 Analysis of Categorical Data -- 15.1 Introduction -- 15.2 ChiSquare Tests -- 15.3 Homogeneity and Independence -- 15.4 Consistency and Power -- 15.5  $2 \times 2$  Contingency Tables -- 15.6  $r \times c$  Contingency Tables -- Chapter 16 Basics of Bayesian Statistics -- 16.1 Introduction -- 16.2 Prior and Posterior Distributions -- 16.3 Bayesian Inference -- Predictive Distribution -- Point Estimation -- Bayesian Intervals -- Bayesian Hypotheses Testing -- 16.4 Final Comments -- Appendix A Supporting R Code -- Appendix B Statistical Tables -- Bibliography -- Answers to OddNumbered Problems -- Index -- EULA.

---

