

1. Record Nr.	UNINA9910819742103321
Titolo	Probability : an introduction with statistical applications / / John J. Kinney
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, c2015 Hoboken, New Jersey : , : Wiley, , c2015
ISBN	1-118-94710-X 1-118-94709-6
Edizione	[Second edition.]
Descrizione fisica	1 online resource (483 pages) : illustrations
Classificazione	417 519.2
Disciplina	519.2
Soggetti	Probabilities - Textbooks Mathematical statistics - Textbooks
Lingua di pubblicazione	Non definito
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes bibliographical references (p. 388-389) and index
Nota di bibliografia	Includes bibliographical references (pages 338-389) and index.
Nota di contenuto	Cover -- Title Page -- Copyright -- Dedication -- Preface for the First Edition -- Historical Note -- About the Text -- For the Instructor -- Preface for the Second Edition -- Chapter 1: Sample Spaces and Probability -- 1.1 Discrete Sample Spaces -- 1.2 Events -- Axioms of Probability -- 1.3 Probability Theorems -- 1.4 Conditional Probability and Independence -- 1.5 Some Examples -- 1.6 Reliability of Systems -- 1.7 Counting Techniques -- 1.8 Chapter Review -- 1.9 PROBLEMS FOR REVIEW -- Chapter 2: Discrete Random Variables and Probability Distributions -- 2.1 Random Variables -- 2.2 Distribution Functions -- 2.3 Expected Values of Discrete Random Variables -- 2.4 Binomial Distribution -- 2.5 A Recursion -- 2.6 Some Statistical Considerations -- 2.7 Hypothesis Testing: Binomial Random Variables -- 2.8 Distribution of A Sample Proportion -- 2.9 Geometric and Negative Binomial Distributions -- 2.10 The Hypergeometric Random Variable: Acceptance Sampling -- 2.11 Acceptance Sampling (Continued) -- 2.12 The Hypergeometric Random Variable: Further Examples -- 2.13 The Poisson Random Variable -- 2.14 The Poisson Process -- Chapter Review -- Problems for Review -- Chapter 3: Continuous Random Variables and Probability Distributions -- 3.1 Introduction -- 3.2

Uniform Distribution -- 3.3 Exponential Distribution -- 3.4 Reliability
-- 3.5 Normal Distribution -- 3.6 Normal Approximation to the
Binomial Distribution -- 3.7 Gamma and Chi-Squared Distributions --
3.8 Weibull Distribution -- Chapter Review -- Problems For Review --
Chapter 4: Functions of Random Variables -- Generating Functions --
Statistical Applications -- 4.1 Introduction -- 4.2 Some Examples of
Functions of Random Variables -- 4.3 Probability Distributions of
Functions of Random Variables -- 4.4 Sums of Random Variables I --
4.5 Generating Functions.
4.6 Some Properties of Generating Functions -- 4.7 Probability
Generating Functions for Some Specific Probability Distributions -- 4.8
Moment Generating Functions -- 4.9 Properties of Moment Generating
Functions -- 4.10 Sums of Random Variables-II -- 4.11 The Central
Limit Theorem -- 4.12 Weak Law of Large Numbers -- 4.13 Sampling
Distribution of the Sample Variance -- 4.14 Hypothesis Tests and
Confidence Intervals for a Single Mean -- 4.15 Hypothesis Tests on
Two Samples -- 4.16 Least Squares Linear Regression -- 4.17 Quality
Control Chart for -- Chapter Review -- Problems for Review -- Chapter
5: Bivariate Probability Distributions -- 5.1 Introduction -- 5.2 Joint
and Marginal Distributions -- 5.3 Conditional Distributions and
Densities -- 5.4 Expected Values and the Correlation Coefficient -- 5.5
Conditional Expectations -- 5.6 Bivariate Normal Densities -- 5.7
Functions of Random Variables -- CHAPTER REVIEW -- PROBLEMS FOR
REVIEW -- Chapter 6: Recursions and Markov Chains -- 6.1
Introduction -- 6.2 Some Recursions and their Solutions -- 6.3
Random Walk and Ruin -- 6.4 Waiting Times for Patterns in Bernoulli
Trials -- 6.5 Markov Chains -- CHAPTER REVIEW -- PROBLEMS FOR
REVIEW -- Chapter 7: Some Challenging Problems -- 7.1 My Socks and
-- 7.2 Expected Value -- 7.3 Variance -- 7.4 Other "Socks" Problems
-- 7.5 Coupon Collection and Related Problems -- 7.6 Conclusion --
7.7 Jackknifed Regression and the Bootstrap -- 7.8 Cook's Distance --
7.9 The Bootstrap -- 7.10 On Waldegrave's Problem -- 7.11
Probabilities of Winning -- 7.12 More than Three Players -- 7.13
Conclusion -- 7.14 On Huygen's First Problem -- 7.15 Changing the
Sums for the Players -- Bibliography: Where to Learn More -- Appendix
A: Use of Mathematica in Probability and Statistics -- Chapter One --
Chapter Two -- Chapter Three -- Chapter Four -- Chapter Five --
Chapter Six.
Appendix B: Answers for Odd-Numbered Exercises -- Chapter 1 --
Chapter 2 -- Chapter 3 -- Chapter 4 -- Chapter 5 -- Chapter 6 --
Appendix C: Standard Normal Distribution -- The Distribution Table --
Chi-Squared Distribution Table -- Index -- End User License
Agreement.

Sommario/riassunto

Praise for the First Edition "This is a well-written and impressively presented introduction to probability and statistics. The text throughout is highly readable, and the author makes liberal use of graphs and diagrams to clarify the theory." - The Statistician
Thoroughly updated, Probability: An Introduction with Statistical Applications, Second Edition features a comprehensive exploration of statistical data analysis as an application of probability. The new edition provides an introduction to statistics with accessible coverage of reliability, acceptance sampling, confidence intervals, hypothesis testing, and simple linear regression. Encouraging readers to develop a deeper intuitive understanding of probability, the author presents illustrative geometrical presentations and arguments without the need for rigorous mathematical proofs. The Second Edition features interesting and practical examples from a variety of engineering and scientific fields, as well as: Over 880 problems at varying degrees of

difficulty allowing readers to take on more challenging problems as their skill levels increase Chapter-by-chapter projects that aid in the visualization of probability distributions New coverage of statistical quality control and quality production An appendix dedicated to the use of Mathematica® and a companion website containing the referenced data sets Featuring a practical and real-world approach, this textbook is ideal for a first course in probability for students majoring in statistics, engineering, business, psychology, operations research, and mathematics. *Probability: An Introduction with Statistical Applications, Second Edition* is also an excellent reference for researchers and professionals in any discipline who need to make decisions based on data as well as readers interested in learning how to accomplish effective decision making from data.
