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Nota di contenuto	Intro -- Bayesian Statistics -- Contents -- Preface -- Preface to the First Edition -- 1 Preliminaries -- 1.1 Probability and Bayes' Theorem -- 1.1.1 Notation -- 1.1.2 Axioms for probability -- 1.1.3 'Unconditional' probability -- 1.1.4 Odds -- 1.1.5 Independence -- 1.1.6 Some simple consequences of the axioms -- Bayes' Theorem -- 1.2 Examples on Bayes' Theorem -- 1.2.1 The Biology of Twins -- 1.2.2 A political example -- 1.2.3 A warning -- 1.3 Random variables -- 1.3.1 Discrete random variables -- 1.3.2 The binomial distribution -- 1.3.3 Continuous random variables -- 1.3.4 The normal distribution -- 1.3.5 Mixed random variables -- 1.4 Several random variables -- 1.4.1 Two discrete random variables -- 1.4.2 Two continuous random variables -- 1.4.3 Bayes' Theorem for random variables -- 1.4.4 Example -- 1.4.5 One discrete variable and one continuous variable -- 1.4.6 Independent random variables -- 1.5 Means and variances -- 1.5.1 Expectations -- 1.5.2 The expectation of a sum and of a product -- 1.5.3 Variance, precision and standard deviation -- 1.5.4 Examples -- 1.5.5 Variance of a sum -- covariance and correlation -- 1.5.6 Approximations to the mean and variance of a function of a random variable -- 1.5.7 Conditional expectations and variances -- 1.5.8 Medians and modes -- 1.6 Exercises on Chapter 1 -- 2 Bayesian inference for the normal distribution -- 2.1 Nature of Bayesian

Relationship to the analysis of variance -- 6.5.5 Example -- 6.5.6 Relationship to a simple linear regression model -- 6.5.7 Investigation of contrasts.
6.6 The two way layout.

Sommario/riassunto

Bayesian Statistics is the school of thought that combines prior beliefs with the likelihood of a hypothesis to arrive at posterior beliefs. The first edition of Peter Lee's book appeared in 1989, but the subject has moved ever onwards, with increasing emphasis on Monte Carlo based techniques. This new fourth edition looks at recent techniques such as variational methods, Bayesian importance sampling, approximate Bayesian computation and Reversible Jump Markov Chain Monte Carlo (RJMCMC), providing a concise account of the way in which the Bayesian approach to statistics develops as well as how it contrasts with the conventional approach. The theory is built up step by step, and important notions such as sufficiency are brought out of a discussion of the salient features of specific examples. This edition: Includes expanded coverage of Gibbs sampling, including more numerical examples and treatments of OpenBUGS, R2WinBUGS and R2OpenBUGS. Presents significant new material on recent techniques such as Bayesian importance sampling, variational Bayes, Approximate Bayesian Computation (ABC) and Reversible Jump Markov Chain Monte Carlo (RJMCMC). Provides extensive examples throughout the book to complement the theory presented. Accompanied by a supporting website featuring new material and solutions. More and more students are realizing that they need to learn Bayesian statistics to meet their academic and professional goals. This book is best suited for use as a main text in courses on Bayesian statistics for third and fourth year undergraduates and postgraduate students.