1. Record Nr. UNISA996418278303316

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Titolo	Likelihood and Bayesian Inference [[electronic resource]] : With Applications in Biology and Medicine / / by Leonhard Held, Daniel Sabanés Bové
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2020
ISBN	3-662-60792-1
Edizione	[2nd ed. 2020.]
Descrizione fisica	1 online resource (XIII, 402 p. 84 illus.)
Collana	Statistics for Biology and Health, , 1431-8776
Disciplina	570.15195
Soggetti	Statistics Biostatistics Ecology Biomathematics Statistics for Life Sciences, Medicine, Health Sciences Statistical Theory and Methods Bayesian Inference Theoretical Ecology/Statistics Genetics and Population Dynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	This richly illustrated textbook covers modern statistical methods with applications in medicine, epidemiology and biology. Firstly, it discusses the importance of statistical models in applied quantitative research and the central role of the likelihood function, describing likelihood-based inference from a frequentist viewpoint, and exploring the properties of the maximum likelihood estimate, the score function, the likelihood ratio and the Wald statistic. In the second part of the book, likelihood is combined with prior information to perform Bayesian inference. Topics include Bayesian updating, conjugate and reference priors, Bayesian point and interval estimates, Bayesian asymptotics and empirical Bayes methods. It includes a separate chapter on modern

numerical techniques for Bayesian inference, and also addresses advanced topics, such as model choice and prediction from frequentist and Bayesian perspectives. This revised edition of the book “Applied Statistical Inference” has been expanded to include new material on Markov models for time series analysis. It also features a comprehensive appendix covering the prerequisites in probability theory, matrix algebra, mathematical calculus, and numerical analysis, and each chapter is complemented by exercises. The text is primarily intended for graduate statistics and biostatistics students with an interest in applications.