

Essentials of Statistical Inference is a modern and accessible treatment of the procedures used to draw formal inferences from data. Aimed at advanced undergraduate and graduate students in mathematics and related disciplines, as well as those in other fields seeking a concise treatment of the key ideas of statistical inference, it presents the concepts and results underlying the Bayesian, frequentist, and Fisherian approaches, with particular emphasis on the contrasts between them. Contemporary computational ideas, as well as basic mathematical theory, are explained.

Written in a lucid and informal style, this concise text provides basic material on the main approaches to inference, as well as more advanced material on modern developments in statistical theory, including: contemporary material on Bayesian computation, such as MCMC; higher-order likelihood theory; predictive inference; bootstrap methods and conditional inference. It contains numerous extended examples of the application of formal inference techniques to real data, as well as historical commentary on the development of the subject. Throughout, the text concentrates on concepts, rather than on mathematical detail, while maintaining appropriate levels of formality. Each chapter ends with a set of accessible problems.

Based to a large extent on lectures given at the University of Cambridge over a number of years, the material has been polished by student feedback. Some prior knowledge of probability is assumed, while some previous knowledge of the objectives and main approaches to statistical inference would be helpful but is not essential.

Cambridge Series in Statistical and Probabilistic Mathematics

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This series of high quality upper-division textbooks and expository monographs covers all aspects of stochastic applicable mathematics. The topics range from pure and applied statistics to probability theory, operations research, optimization and mathematical programming. The books contain clear presentations of new developments in the field and also of the state of the art in classical methods. While emphasizing rigorous treatment of theoretical methods, the books also contain applications and discussions of new techniques made possible by advances in computational practice.

CAMBRIDGE
UNIVERSITY PRESS
www.cambridge.org

ISBN 978-0-521-83971-6



9 780521 839716

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