Increasingly, researchers in many branches of science are coming into contact with Bayesian statistics or Bayesian probability theory. By encompassing both inductive and deductive logic, Bayesian analysis can improve model parameter estimates by many orders of magnitude. It provides a simple and unified approach to all data analysis problems, allowing the experimenter to assign probabilities to competing hypotheses of interest, on the basis of the current state of knowledge. This book provides a clear exposition of the underlying concepts with large numbers of worked examples and problem sets. The book also discusses numerical techniques for implementing the Bayesian calculations, including an introduction to Markov Chain Monte-Carlo integration and linear and nonlinear least-squares analysis seen from a Bayesian perspective. In addition, background material is provided in appendices and supporting Mathematica notebooks are available, providing an easy learning route for upper-undergraduates, graduate students, or any serious researcher in physical sciences or engineering. Author: Gregory, Phil Publisher: Cambridge University Press Illustration: N Language: ENG