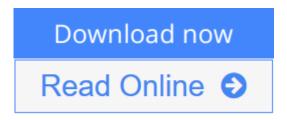# Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science)

By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson

Download now

Read Online →

Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson

Emphasizing the use of WinBUGS and R to analyze real data, **Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians** presents statistical tools to address scientific questions. It highlights foundational issues in statistics, the importance of making accurate predictions, and the need for scientists and statisticians to collaborate in analyzing data. The WinBUGS code provided offers a convenient platform to model and analyze a wide range of data.

The first five chapters of the book contain core material that spans basic Bayesian ideas, calculations, and inference, including modeling one and two sample data from traditional sampling models. The text then covers Monte Carlo methods, such as Markov chain Monte Carlo (MCMC) simulation. After discussing linear structures in regression, it presents binomial regression, normal regression, analysis of variance, and Poisson regression, before extending these methods to handle correlated data. The authors also examine survival analysis and binary diagnostic testing. A complementary chapter on diagnostic testing for continuous outcomes is available on the book's website. The last chapter on nonparametric inference explores density estimation and flexible regression modeling of mean functions.

The appropriate statistical analysis of data involves a collaborative effort between scientists and statisticians. Exemplifying this approach, **Bayesian Ideas and Data Analysis** focuses on the necessary tools and concepts for modeling and analyzing scientific data.

Data sets and codes are provided on a supplemental website.

Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science)

By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson

Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson

Emphasizing the use of WinBUGS and R to analyze real data, **Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians** presents statistical tools to address scientific questions. It highlights foundational issues in statistics, the importance of making accurate predictions, and the need for scientists and statisticians to collaborate in analyzing data. The WinBUGS code provided offers a convenient platform to model and analyze a wide range of data.

The first five chapters of the book contain core material that spans basic Bayesian ideas, calculations, and inference, including modeling one and two sample data from traditional sampling models. The text then covers Monte Carlo methods, such as Markov chain Monte Carlo (MCMC) simulation. After discussing linear structures in regression, it presents binomial regression, normal regression, analysis of variance, and Poisson regression, before extending these methods to handle correlated data. The authors also examine survival analysis and binary diagnostic testing. A complementary chapter on diagnostic testing for continuous outcomes is available on the book's website. The last chapter on nonparametric inference explores density estimation and flexible regression modeling of mean functions.

The appropriate statistical analysis of data involves a collaborative effort between scientists and statisticians. Exemplifying this approach, **Bayesian Ideas and Data Analysis** focuses on the necessary tools and concepts for modeling and analyzing scientific data.

Data sets and codes are provided on a supplemental website.

Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson Bibliography

- Sales Rank: #1037914 in Books
- Brand: Brand: CRC Press
- Published on: 2010-07-02
- Original language: English
- Number of items: 1
- Dimensions: 1.10" h x 6.90" w x 10.00" l, 2.35 pounds
- Binding: Hardcover
- 516 pages

Download and Read Free Online Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson

---

Editorial Review

Review

This book provides a good introduction to Bayesian approaches to applied statistical modelling. … The authors have fulfilled their main aim of introducing Bayesian ideas through examples using a large number of statistical models. An interesting feature of this book is the humour of the authors that make it more fun than typical statistics books. In summary, this is a very interesting introductory book, very well organised and has been written in a style that is extremely pleasant and enjoyable to read. Both the statistical concepts and examples are very well explained. In conclusion, I highly recommend this book as both a M.S./Ph.D. course text and as an excellent reference book for anyone interested in Bayesian statistics. A copy of it should certainly appear in every university or, even private, library.
?Rolando de la Cruz, *Journal of Applied Statistics*, June 2012

Bayesian Ideas and Data Analysis (BIDA) is exactly what its title advertises: an introduction to Bayesian approaches to applied statistical modeling. Its authors, who are renowned Bayesian statisticians, present a variety of insightful case studies of Bayesian data analysis, many of which have been drawn from their own research. The book is an excellent purchase for practitioners who are unfamiliar with Bayesian methods and want to learn to use them for their data-based research. **BIDA** also should be strongly considered as a primary text by teachers of introductory courses in applied Bayesian inference. … The writing in **BIDA** is clear, accurate, and easy to follow.
?Jerome P. Reiter, *The American Statistician*, November 2011

I liked it very much! … the book is indeed focused on explaining the Bayesian ideas through (real) examples and it covers a lot of regression models, all the way to non-parametrics. It contains a good proportion of WinBUGS and R codes. … The book is pleasant to read, with humorous comments here and there. …
?Christian Robert (Université Paris-Dauphine) on his blog, October 2011

If you think that a Bayesian approach to statistical analysis is nice in principle but too complicated in practice, this book may change your mind. The authors' enthusiasm for the subject is apparent and they have taken care that the text is generally easy to read, with some occasional wry comments that make it more amusing than a typical statistics book. The emphasis is on medical and biological cases, but a range of other applications are covered. …
There are three useful appendices on matrices and vectors, probability, and getting started in R, which is well chosen, and includes a note on the interface between R and WinBUGS. The exercises are an integral part of the book and are placed throughout the text …
I think that the book is innovative for two reasons. Firstly, it provides an intermediate-level course in statistics, using the Bayesian paradigm, that could be given to engineers and scientists requiring substantial statistical analysis, as well as material for a course in Bayesian statistics that is typically offered to statistics students. Secondly, it shows how to perform the analyses by using WinBUGS throughout the text. I would use this book as a basis for a course on Bayesian statistics. It is an excellent text for individual study, and students will find it a valuable reference later in their careers.
?Andrew V. Metcalfe, *Journal of the Royal Statistical Society: Series A*, Vol. 174, October 2011

I do believe this book to be more accessible that most Bayesian books … this book could be adequate for the

statistics student who has a solid background in statistical concepts and wants to gain more knowledge about the Bayesian approach. … The authors do a good job of providing examples … There are a number of exercises included, which makes the book adequate as a textbook. … There are many samples of WinBUGS code interspersed throughout for the different data examples, which are valuable for someone trying to implement Bayesian methods for data analysis. I found the book easy to read and there are more attempts to liven up the book with humor than the typical textbook.
?Willis A. Jensen, *Journal of Quality Technology*, Vol. 43, No. 2, April 2011

This is a very sound introductory text, and is certainly one which teachers of any course on Bayesian statistics beyond the briefest and most elementary should consider adopting.
?David J. Hand, *International Statistical Review* (2011), 79

Unlike many Bayesian books which did not cover this topic extensively, this new book teaches readers how to illicit informative priors from field experts in great detail. … Straightforward R codes are also provided for pinpointing hyperparameter values … this book is particularly valuable in emphasizing the right approach to elicit prior, an important component of deriving posterior or predictive distribution.
Another important feature of this new Bayesian textbook is its rich details. …The proofs never skip steps, and are easy to follow for readers taking only one or two semester math stat classes. The well-written text along with more than 70 figures and 50 plus tables add tremendously to the elucidation of the problems discussed in the book. Directly following some examples or important discussion in the text, readers can self-check whether they understand the materials by playing with some exercise problems, most of which are pretty straightforward.
Christensen et al. provide many WinBUGS codes in the book and a website for readers to download these codes. In addition, the authors introduce how to perform Bayesian inferences using SAS codes on two occasions … The book also recommends some other programs or websites that will facilitate computation … This book is also characterized by its humor, … [making] reading this Bayesian book more delightful.
?Dunlei Cheng, *Statistics in Medicine*, 2011

About the Author

Ronald Christensen is a Professor in the Department of Mathematics and Statistics at the University of New Mexico, Albuquerque. He is also a Fellow of the American Statistical Association (ASA) and the Institute of Mathematical Statistics as well as the former Chair of the ASA Section on Bayesian Statistical Science.

Wesley Johnson is a Professor in the Department of Statistics at the University of California, Irvine. He is also a Fellow of the ASA and Chair-Elect of the ASA Section on Bayesian Statistical Science.

Adam Branscum is an Associate Professor in the Department of Public Health at Oregon State University, Corvallis.

Timothy E. Hanson is an Associate Professor in the Department of Statistics at the University of South Carolina, Columbia.

Users Review

From reader reviews:

Marvin Seto:

Here thing why this particular Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) are different and reliable to be yours. First of all looking at a book is good nonetheless it depends in the content of the usb ports which is the content is as tasty as food or not. Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) giving you information deeper as different ways, you can find any book out there but there is no guide that similar with Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science). It gives you thrill looking at journey, its open up your own eyes about the thing that will happened in the world which is maybe can be happened around you. You can bring everywhere like in playground, café, or even in your approach home by train. For anyone who is having difficulties in bringing the published book maybe the form of Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) in e-book can be your alternate.

Mamie Bostic:

Nowadays reading books are more than want or need but also turn into a life style. This reading addiction give you lot of advantages. Associate programs you got of course the knowledge the particular information inside the book that will improve your knowledge and information. The knowledge you get based on what kind of guide you read, if you want drive more knowledge just go with education and learning books but if you want experience happy read one having theme for entertaining such as comic or novel. Typically the Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) is kind of book which is giving the reader erratic experience.

Audrey Rivas:

Playing with family in a very park, coming to see the marine world or hanging out with pals is thing that usually you have done when you have spare time, subsequently why you don't try factor that really opposite from that. One activity that make you not feeling tired but still relaxing, trilling like on roller coaster you have been ride on and with addition of knowledge. Even you love Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science), you are able to enjoy both. It is excellent combination right, you still would like to miss it? What kind of hang type is it? Oh seriously its mind hangout folks. What? Still don't have it, oh come on its named reading friends.

Donna Moore:

Don't be worry if you are afraid that this book will probably filled the space in your house, you could have it in e-book technique, more simple and reachable. This Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) can give you a lot of friends because by you checking out this one book you have factor that they don't and make you more like an interesting person. This book can be one of one step for you to get success. This book offer you information that perhaps your friend doesn't realize, by knowing more than some other make you to be great individuals. So , why hesitate? We need to have Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science).

Download and Read Online Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson #QAB9FOWVIPX

Read Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson for online ebook

Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson books to read online.

Online Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson ebook PDF download

Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson Doc

Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson Mobipocket

Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson EPub

QAB9FOWVIPX: Bayesian Ideas and Data Analysis: An Introduction for Scientists and Statisticians (Chapman & Hall/CRC Texts in Statistical Science) By Ronald Christensen, Wesley Johnson, Adam Branscum, Timothy E Hanson