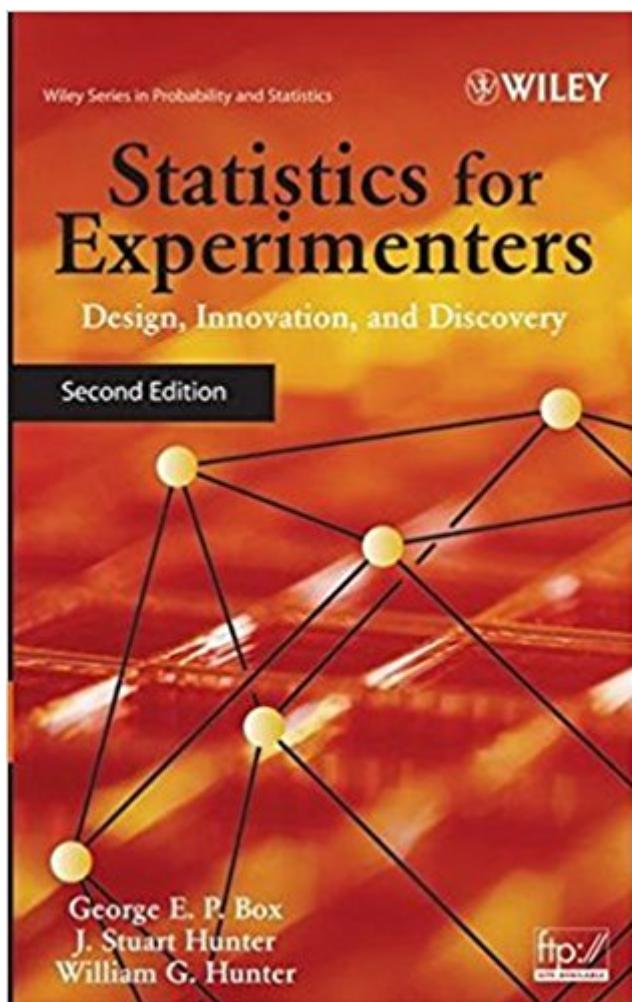


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# Statistics For Experimenters: Design, Innovation, And Discovery, 2nd Edition



## Synopsis

A Classic adapted to modern times Rewritten and updated, this new edition of Statistics for Experimenters adopts the same approaches as the landmark First Edition by teaching with examples, readily understood graphics, and the appropriate use of computers. Catalyzing innovation, problem solving, and discovery, the Second Edition provides experimenters with the scientific and statistical tools needed to maximize the knowledge gained from research data, illustrating how these tools may best be utilized during all stages of the investigative process. The authors' practical approach starts with a problem that needs to be solved and then examines the appropriate statistical methods of design and analysis. Providing even greater accessibility for its users, the Second Edition is thoroughly revised and updated to reflect the changes in techniques and technologies since the publication of the classic First Edition. Among the new topics included are: Graphical Analysis of Variance Computer Analysis of Complex Designs Simplification by transformation Hands-on experimentation using Response Surface Methods Further development of robust product and process design using split plot arrangements and minimization of error transmission Introduction to Process Control, Forecasting and Time Series Illustrations demonstrating how multi-response problems can be solved using the concepts of active and inert factor spaces and canonical spaces Bayesian approaches to model selection and sequential experimentation An appendix featuring Quaquaversal quotes from a variety of sources including noted statisticians and scientists to famous philosophers is provided to illustrate key concepts and enliven the learning process. All the computations in the Second Edition can be done utilizing the statistical language R. Functions for displaying ANOVA and lambda plots, Bayesian screening, and model building are all included and R packages are available online. All these topics can also be applied utilizing easy-to-use commercial software packages. Complete with applications covering the physical, engineering, biological, and social sciences, Statistics for Experimenters is designed for individuals who must use statistical approaches to conduct an experiment, but do not necessarily have formal training in statistics. Experimenters need only a basic understanding of mathematics to master all the statistical methods presented. This text is an essential reference for all researchers and is a highly recommended course book for undergraduate and graduate students.

## Book Information

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"This is a very well written book that every design engineering and design technician needs to own." (IEEE Electrical Insulation Magazine, May/June 2008) "A few of our profession would fail to benefit from and enjoy reading it." (Journal of the American Statistical Association, December 2006) "...belongs on the shelf on every industrial statistician. There is much wisdom and depth here, and the improvements embodied in this new edition are substantial enough to recommend it even to those who already possess the first edition." (The American Statistician, November 2006)

"...remains one of the essential books in experimental design and analysis...buying the second edition is absolutely worth the effort..." (MAA Reviews, August 18, 2006) "A the new edition is a significant improvement on what was already a classic." (AIChE Journal, July 2006) "Is it really possible to update a well-known, classic textbook and improve it? Yes, it is not only possible but it has been done." (Technometrics, May 2006) "...it often happens that there is no statistician around when you desperately need one - then it may be useful to pull this from your laboratory textbook shelf." (Canadian Journal of Medical Laboratory Science, February 2006) "A very useful and valuable statistics bookA highly recommended." (CHOICE, February 2006) "This is an excellent book indeed. Like the first edition, this book will soon become a must for all experimenters and educators/trainers. I would strongly recommend this book to everyone." (Journal of Quality Technology, January 2006) "This text is, undoubtedly, an essential reference for all researchers and an invaluable course book for undergraduate and graduate students." (Mathematical Reviews, 20006b) "...this is a welcome second edition of a much loved book...valuable..." (International Statistical Institute, January 2006)

The new classic For many years, the First Edition of Statistics for Experimenters has been a premier guide and reference for the application of statistical methods, especially as applied to experimental design. Rewritten and updated, this new edition of Statistics for Experimenters adopts the same approach as the landmark First Edition by demonstrating through worked examples, readily understood graphics, and the appropriate use of computers. Catalyzing innovation, problem solving, and discovery, the Second Edition provides experimenters with the scientific and statistical tools needed to maximize the knowledge gained from investigation and research. The authors' practical approach starts with a problem that needs to be solved and then illustrates the statistical methods best utilized in all stages of design and analysis. Providing even greater accessibility for its users, the Second Edition reflects new techniques and technologies developed since the publication of the classic First Edition. Among the new topics included are: Graphical analysis of variance Computer analysis to determine best follow-up runs Simplification by transformation Hands-on experimentation using response surface methods Further development of robust product and process design using split-plot arrangements and minimization of error transmission Introduction to process control, forecasting, and time series Illustrations demonstrating how multiresponse problems can be solved using the concepts of active and inert factor spaces and canonical spaces Bayesian approaches to model selection and sequential experimentation Applications for Six Sigma initiatives in a variety of disciplines Appendix featuring Quaquaversal quotes from noted statisticians, scientists, and philosophers that embellish key concepts and enliven the learning process Computations in the Second Edition can be done utilizing the statistical language R. Functions for displaying ANOVA and lambda plots, Bayesian screening, and model building are all included, and R packages are available on a related FTP site. These topics can also be applied utilizing easy-to-use commercial software packages. Complete with applications covering the physical, engineering, biological, and social sciences, Statistics for Experimenters is designed for all individuals who must use statistical approaches to conduct an experiment. Experimenters need only a basic understanding of mathematics to master all the statistical methods presented. This text is an essential reference for all researchers and an invaluable course book for undergraduate and graduate students.

Fanstastic book,....if u are into Statistics this is your book.....Very straight-forward, and for those with preliminary Statistics knowledge more of a reference. Great book!!

Good book, good price

Excellent reference book.

Great book. Like new

this book explain about experiment design in depth, so you can understand easily when you study experiment design by using this book

I am a mathematical statistician and I appreciate and understand modern books on experimental designs such as the book by Wu and Hamada. However, the first edition of this book became an immediate classic because George Box is a genius and is from a rare breed of statisticians who have strong theoretical and practical experience in statistical methods and in this case statistical design. Stu Hunter and Bill Hunter are two other statisticians with strong applied backgrounds in engineering and other applications of experimental design. Before you can appreciate the theory you need to understand the theory. The first edition of this book presented the concepts beautifully. This was a great help to me as I had learned the theory and the construction of factorial designs, fractional factorial designs and incomplete block designs, but never had a clear understanding of when to use them until I read this book. Other important simple designs of great practical importance are also covered extremely well. I wrote a review of the first edition of this text. Justin Hunter appreciated it so much that he wrote a very touching email to me on this and he was very kind to send me a complimentary copy of the second edition. Justin is the son of Bill Hunter. Unfortunately Bill past away before this second edition was conceived. I believe it was partly as a tribute to Bill that George Box and Stu Hunter put together this revised edition. The spirit and philosophy of the first edition has been maintained and since the first edition had appear way back in 1978 the production of an updated edition is welcome and way over due. Please read the book review by Justin Hunter. He is very upfront about his bias for his father but what he writes is honest and comes from an interesting and unique perspective.

While it seems odd to describe a very good book on statistics as a great read versus merely as a great reference book, this latest edition by George Box et al., is very much both. Useful new topics were added in this edition, e.g., experimentation using surface response methods, graphical analysis of variance, computer analysis of complex designs, simplification by transformation, etc. It stays on my reference shelf in easy reach.

This is the best applied book in any scientific or mathematical subject that I have ever read. The reviewers who are looking for equations and the typical assumptions-theory-proof presentation just picked up the wrong book. If you're interested in applying experimental design to real-world problems, this book is indispensable. The authors help you get inside the math and really understand the important and often profound issues. It is easy to write a book that regurgitates equations and proofs; it is a major accomplishment to bring to bear decades of practical insights. I still need to read the 2nd edition in detail and I plan to spend as much time as needed. Based on my brief reading of selected sections, the authors have retained the same style which has made their 1st edition a classic.

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