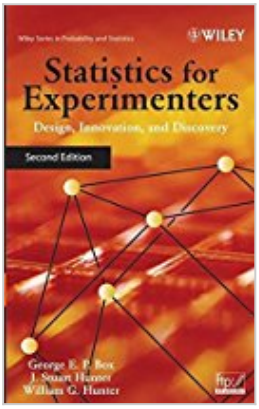

Statistics for Experimenters: Design, Innovation, and Discovery, 2nd Edition

By George E. P. Box, J. Stuart Hunter, William G. Hunter

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By George E. P. Box, J. Stuart Hunter, William G. Hunter

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 Service 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 lamba plots, Bayesian screening, and model building are all included and R packages are available online. All theses 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.

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Editorial Review

Review
"This is a very well written book that every design engineering and design technician needs to own." (*IEEE Electrical Insulation Magazine*, May/June 2008)

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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.

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- 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
- Aappendix featuring Quaquaversal quotes from noted statisticians, scientists, and philosophers that embellish key concepts and enliven the learning process

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GEORGE E. P. BOX, PhD, DSc, is Ronald Aylmer Fisher Professor Emeritus of Statistics and Industrial Engineering at the University of Wisconsin–Madison. He is a Fellow of the Royal Society, an Honorary Fellow and Shewhart and Deming Medalist of the American Society for Quality and was awarded the Guy Medal in Gold of the Royal Statistical Society. He is also the recipient of the Samuel S. Wilks Memorial Medal of the American Statistical Association.

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The late **WILLIAM G. HUNTER**, PhD, was Professor of Statistics and Engineering at the University of Wisconsin–Madison.

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