Applied Linear Regression Models
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Is real property appraisal evolving, or have all of the "big
ideas" already been conceived? This question has been
circulating among the leaders of the Appraisal Institute
during the past several annual meetings, usually
encountering little in the way of satisfying answers. This
is not too surprising, because grand ideas and new
knowledge do not typically evolve from off-hand
conversation. They are the product of focused
intellectual activity and hours of difficult work. This
unquenched thirst for new knowledge is the primary
reason for assembling this collection of new manuscripts
dealing with valuation theory, which was financially
underwritten by the Appraisal Institute. Their generosity
and willingness to partner with the American Real Estate
Society made this collection of thoughtful and thought
provoking essays possible. They are the result of a
global response to a worldwide call for papers, and
demonstrate that real estate valuation is indeed an
international discipline. The United States, Australia and
New Zealand, Southeast Asia, the Pacific Rim, and
Europe are all represented by this impressive collection
of authors. Together, the eighteen essays that make up
this volume demonstrate that there are a sufficient
number of "big ideas" to challenge and improve the
appraisal profession for years to come. Real Estate
Valuation Theory is organized around five categories of
intellectual contribution to the whole-appraiser decision
making and valuation accuracy, application of

nontraditional appraisal techniques such as regression and the minimum-variance grid method, appraising contaminated property, ad valorem tax assessment, and new perspectives on traditional appraisal methods. One common thread is that all of the papers are exceptionally well written and thought provoking.
Praise for the First Edition "The attention to detail is impressive. The book is very wellwritten and the author is extremely careful with his descriptions .. . the examples are wonderful." —The AmericanStatistician Fully revised to reflect the latest methodologies and emergingapplications, Applied Regression Modeling, Second Editioncontinues to highlight the benefits of statistical methods,specifically regression analysis and modeling, for understanding,analyzing, and interpreting multivariate data in business, science,and social science applications. The author utilizes a bounty of real-life examples, casestudies, illustrations, and graphics to introduce readers to theworld of regression analysis using various software packages,including R, SPSS, Minitab, SAS, JMP, and S-PLUS. In a clear andcareful writing style, the book introduces modeling extensions thatillustrate more advanced regression techniques, including logisticregression, Poisson regression, discrete choice models, multilevelmodels, and Bayesian modeling. In addition, the Second Edition features clarificationand expansion of challenging topics, such as: Transformations, indicator variables, and interaction Testing model assumptions Nonconstant variance Autocorrelation Variable selection methods Model building and graphical interpretation Throughout the

book, datasets and examples have been updated andadditional problems are included at the end of each chapter,allowing readers to test their comprehension of the presentedmaterial. In addition, a related website features the book'sdatasets, presentation slides, detailed statistical softwareinstructions, and learning resources including additional problemsand instructional videos. With an intuitive approach that is not heavy on mathematicaldetail, Applied Regression Modeling, Second Edition is anexcellent book for courses on statistical regression analysis atthe upper-undergraduate and graduate level. The book also serves asa valuable resource for professionals and researchers who utilizestatistical methods for decision-making in their everyday work.

Kutner, Nachtsheim, Neter, Wasserman, Applied Linear Regression Models, 4/e (ALRM4e) is the long established leading authoritative text and reference on regression (previously Neter was lead author.) For students in most any discipline where statistical analysis or interpretation is used, ALRM has served as the industry standard. The text includes brief introductory and review material, and then proceeds through regression and modeling. All topics are presented in a precise and clear style supported with solved examples, numbered formulae, graphic illustrations, and "Comments" to provide depth and statistical accuracy and precision. Applications used within the text and the hallmark problems, exercises, and projects are drawn from virtually all disciplines and fields providing motivation for students in any discipline. ALRM 4e

provides an increased use of computing and graphical analysis throughout, without sacrificing concepts or rigor. Applied Linear Statistical Models 5e is the long established leading authoritative text and reference on statistical modeling, analysis of variance, and the design of experiments. For students in most any discipline where statistical analysis or interpretation is used, ALSM serves as the standard work. The text proceeds through linear and nonlinear regression and modeling for the first half, and through ANOVA and Experimental Design in the second half. All topics are presented in a precise and clear style supported with solved examples, numbered formulae, graphic illustrations, and "Comments" to provide depth and statistical accuracy and precision. Applications used within the text and the hallmark problems, exercises, projects, and case studies are drawn from virtually all disciplines and fields providing motivation for students in virtually any college. The Fifth edition provides an increased use of computing and graphical analysis throughout, without sacrificing concepts or rigor. In general, the 5e uses larger data sets in examples and exercises, and the use of automated software without loss of understanding. A Hands-On Way to Learning Data AnalysisPart of the core of statistics, linear models are used to make predictions and explain the relationship between the response and the predictors. Understanding linear models is crucial to a broader competence in the practice of statistics. Linear Models with R, Second Edition explains how to use linear models A valuable new edition of a standard reference The use

of statistical methods for categorical data has increased dramatically, particularly for applications in the biomedical and social sciences. An Introduction to Categorical Data Analysis, Third Edition summarizes these methods and shows readers how to use them using software. Readers will find a unified generalized linear models approach that connects logistic regression and loglinear models for discrete data with normal regression for continuous data. Adding to the value in the new edition is: • Illustrations of the use of R software to perform all the analyses in the book • A new chapter on alternative methods for categorical data, including smoothing and regularization methods (such as the lasso), classification methods such as linear discriminant analysis and classification trees, and cluster analysis • New sections in many chapters introducing the Bayesian approach for the methods of that chapter • More than 70 analyses of data sets to illustrate application of the methods, and about 200 exercises, many containing other data sets • An appendix showing how to use SAS, Stata, and SPSS, and an appendix with short solutions to most odd-numbered exercises Written in an applied, nontechnical style, this book illustrates the methods using a wide variety of real data, including medical clinical trials, environmental questions, drug use by teenagers, horseshoe crab mating, basketball shooting, correlates of happiness, and much more. An Introduction to Categorical Data Analysis, Third Edition is an invaluable tool for statisticians and biostatisticians as well as methodologists in the social and behavioral sciences, medicine and public health, marketing,

education, and the biological and agricultural sciences. Least squares estimation, when used appropriately, is a powerful research tool. A deeper understanding of the regression concepts is essential for achieving optimal benefits from a least squares analysis. This book builds on the fundamentals of statistical methods and provides appropriate concepts that will allow a scientist to use least squares as an effective research tool. Applied Regression Analysis is aimed at the scientist who wishes to gain a working knowledge of regression analysis. The basic purpose of this book is to develop an understanding of least squares and related statistical methods without becoming excessively mathematical. It is the outgrowth of more than 30 years of consulting experience with scientists and many years of teaching an applied regression course to graduate students. Applied Regression Analysis serves as an excellent text for a service course on regression for non-statisticians and as a reference for researchers. It also provides a bridge between a two-semester introduction to statistical methods and a thoeretical linear models course. Applied Regression Analysis emphasizes the concepts and the analysis of data sets. It provides a review of the key concepts in simple linear regression, matrix operations, and multiple regression. Methods and criteria for selecting regression variables and geometric interpretations are discussed. Polynomial, trigonometric, analysis of variance, nonlinear, time series, logistic, random effects, and mixed effects models are also discussed. Detailed case studies and exercises based on real data sets are used to reinforce the concepts. The

data sets used in the book are available on the Internet. The book is based on both authors' several years of experience in teaching linear models at various levels. It gives an up-to-date account of the theory and applications of linear models. The book can be used as a text for courses in statistics at the graduate level and as an accompanying text for courses in other areas. Some of the highlights in this book are as follows. A relatively extensive chapter on matrix theory (Appendix A) provides the necessary tools for proving theorems discussed in the text and offers a selection of classical and modern algebraic results that are useful in research work in econometrics, engineering, and optimization theory. The matrix theory of the last ten years has produced a series of fundamental results about the definiteness of matrices, especially for the differences of matrices, which enable superiority comparisons of two biased estimates to be made for the first time. We have attempted to provide a unified theory of inference from linear models with minimal assumptions. Besides the usual least-squares theory, alternative methods of estimation and testing based on convex loss func tions and general estimating equations are discussed. Special emphasis is given to sensitivity analysis and model selection. A special chapter is devoted to the analysis of categorical data based on logit, loglinear, and logistic regression models. The material covered, theoretical discussion, and its practical applica tions will be useful not only to students but also to researchers and con sultants in statistics.

This volume of Lecture Notes in Statistics consists of the

published proceedings of the first international conference to be held on the topic of generalised linear models. This conference was held from 13 - 15 September 1982 at the Polytechnic of North London and marked an important stage in the development and expansion of the GLIM system. The range of the new system, tentatively named Prism, is here outlined by Bob Baker. Further sections of the volume are devoted to more detailed descriptions of the new facilities, including information on the two different numerical methods now available. Most of the data analyses in this volume are carried out using the GLIM system but this is, of course, not necessary. There are other ways of analysing generalised linear models and Peter Green here discusses the many attractive features of APL, including its ability to analyse generalised linear models. Later sections of the volume cover other invited and contributed papers on the theory and application of generalised linear models. Included amongst these is a paper by Murray Aitkin, proposing a unified approach to statistical modelling through direct likelihood inference, and a paper by Daryl Pregibon showing how GLIM can be programmed to carry out score tests. A paper by Joe Whittaker extends the recent discussion of the relationship between conditional independence and log-linear models and John Hinde considers the introduction of an independent random variable into a linear model to allow for unexplained variation in Poisson data. Focusing on user-developed programming, An R Companion to Linear Statistical Models serves two audiences: those who are familiar with the theory and

applications of linear statistical models and wish to learn or enhance their skills in R; and those who are enrolled in an R-based course on regression and analysis of variance. For those who have never used R, the book begins with a self-contained introduction to R that lays the foundation for later chapters. This book includes extensive and carefully explained examples of how to write programs using the R programming language. These examples cover methods used for linear regression and designed experiments with up to two fixed-effects factors, including blocking variables and covariates. It also demonstrates applications of several pre-packaged functions for complex computational procedures.

This book presents an accessible approach to understanding time series models and their applications. The ideas and methods are illustrated with both real and simulated data sets. A unique feature of this edition is its integration with the R computing environment. The essential introduction to the theory and application of linear models—now in a valuable new edition Since most advanced statistical tools are generalizations of the linear model, it is neces-sary to first master the linear model in order to move forward to more advanced concepts. The linear model remains the main tool of the applied statistician and is central to the training of any statistician regardless of whether the focus is applied or theoretical. This completely revised and updated new edition successfully develops the basic theory of linear models for regression, analysis of variance, analysis of covariance, and linear mixed models. Recent advances

in the methodology related to linear mixed models, generalized linear models, and the Bayesian linear model are also addressed. Linear Models in Statistics, Second Edition includes full coverage of advanced topics, such as mixed and generalized linear models, Bayesian linear models, two-way models with empty cells, geometry of least squares, vector-matrix calculus, simultaneous inference, and logistic and nonlinear regression. Algebraic, geometrical, frequentist, and Bayesian approaches to both the inference of linear models and the analysis of variance are also illustrated. Through the expansion of relevant material and the inclusion of the latest technological developments in the field, this book provides readers with the theoretical foundation to correctly interpret computer software output as well as effectively use, customize, and understand linear models. This modern Second Edition features: New chapters on Bayesian linear models as well as random and mixed linear models Expanded discussion of two-way models with empty cells Additional sections on the geometry of least squares Updated coverage of simultaneous inference The book is complemented with easy-to-read proofs, real data sets, and an extensive bibliography. A thorough review of the requisite matrix algebra has been addedfor transitional purposes, and numerous theoretical and applied problems have been incorporated with selected answers provided at the end of the book. A related Web site includes additional data sets and SAS® code for all numerical examples. Linear Model in Statistics, Second Edition is a must-have book for courses in statistics,

biostatistics, and mathematics at the upper-
undergraduate and graduate levels. It is also an
invaluable reference for researchers who need to gain a
better understanding of regression and analysis of
variance.

Applied Linear Regression Models was listed in the
newsletter of the Decision Sciences Institute as a
classic in its field and a text that should be on every
member's shelf. The third edition continues this
tradition. It is a successful blend of theory and
application. The authors have taken an applied
approach, and emphasize understanding concepts;
this text demonstrates their approach trough worked-
out examples. Sufficient theory is provided so that
applications of regression analysis can be carried
out with understanding. John Neter is past president
of the Decision Science Institute, and Michael Kutner
is a top statistician in the health and life sciences
area. Applied Linear Regression Models should be
sold into the one-term course that focuses on
regression models and applications. This is likely to
be required for undergraduate and graduate
students majoring in allied health, business,
economics, and life sciences.

Linear Statistical Models Developed and refined over
a period of twenty years, the material in this book
offers an especially lucid presentation of linear
statistical models. These models lead to what is
usually called "multiple regression" or "analysis of

variance" methodology, which, in turn, opens up a wide range of applications to the physical, biological, and social sciences, as well as to business, agriculture, and engineering. Unlike similar books on this topic, Linear Statistical Models emphasizes the geometry of vector spaces because of the intuitive insights this approach brings to an understanding of the theory. While the focus is on theory, examples of applications, using the SAS and S-Plus packages, are included. Prerequisites include some familiarity with linear algebra, and probability and statistics at the postcalculus level. Major topics covered include: Methods of study of random vectors, including the multivariate normal, chi-square, t and F distributions, central and noncentral The linear model and the basic theory of regression analysis and the analysis of variance Multiple regression methods, including transformations, analysis of residuals, and asymptotic theory for regression analysis. Separate sections are devoted to robust methods and to the bootstrap. Simultaneous confidence intervals: Bonferroni, Scheffé, Tukey, and Bechhofer Analysis of variance, with two- and three-way analysis of variance Random component models, nested designs, and balanced incomplete block designs Analysis of frequency data through log-linear models, with emphasis on vector space viewpoint. This chapter alone is sufficient for a course on the analysis of frequency data.

This book introduces basic computing skills designed for industry professionals without a strong computer science background. Written in an easily accessible manner, and accompanied by a user-friendly website, it serves as a self-study guide to survey data science and data engineering for those who aspire to start a computing career, or expand on their current roles, in areas such as applied statistics, big data, machine learning, data mining, and informatics. The authors draw from their combined experience working at software and social network companies, on big data products at several major online retailers, as well as their experience building big data systems for an AI startup. Spanning from the basic inner workings of a computer to advanced data manipulation techniques, this book opens doors for readers to quickly explore and enhance their computing knowledge. Computing with Data comprises a wide range of computational topics essential for data scientists, analysts, and engineers, providing them with the necessary tools to be successful in any role that involves computing with data. The introduction is self-contained, and chapters progress from basic hardware concepts to operating systems, programming languages, graphing and processing data, testing and programming tools, big data frameworks, and cloud computing. The book is fashioned with several audiences in mind. Readers without a strong

educational background in CS--or those who need a refresher--will find the chapters on hardware, operating systems, and programming languages particularly useful. Readers with a strong educational background in CS, but without significant industry background, will find the following chapters especially beneficial: learning R, testing, programming, visualizing and processing data in Python and R, system design for big data, data stores, and software craftsmanship.

Continuing to emphasize numerical and graphical methods, An Introduction to Generalized Linear Models, Third Edition provides a cohesive framework for statistical modeling. This new edition of a bestseller has been updated with Stata, R, and WinBUGS code as well as three new chapters on Bayesian analysis. Like its predecessor, this edition presents the theoretical background of generalized linear models (GLMs) before focusing on methods for analyzing particular kinds of data. It covers normal, Poisson, and binomial distributions; linear regression models; classical estimation and model fitting methods; and frequentist methods of statistical inference. After forming this foundation, the authors explore multiple linear regression, analysis of variance (ANOVA), logistic regression, log-linear models, survival analysis, multilevel modeling, Bayesian models, and Markov chain Monte Carlo (MCMC) methods. Using popular statistical software

programs, this concise and accessible text illustrates practical approaches to estimation, model fitting, and model comparisons. It includes examples and exercises with complete data sets for nearly all the models covered.

Kutner, Neter, Nachtsheim, Wasserman, Applied Linear Regression Models, 4/e (ALRM4e) is the long established leading authoritative text and reference on regression (previously Neter was lead author.) For students in most any discipline where statistical analysis or interpretation is used, ALRM has served as the industry standard. The text includes brief introductory and review material, and then proceeds through regression and modeling. All topics are presented in a precise and clear style supported with solved examples, numbered formulae, graphic illustrations, and "Notes" to provide depth and statistical accuracy and precision. Applications used within the text and the hallmark problems, exercises, and projects are drawn from virtually all disciplines and fields providing motivation for students in any discipline. ALRM 4e provides an increased use of computing and graphical analysis throughout, without sacrificing concepts or rigor by using larger data sets in examples and exercises, and where methods can be automated within software without loss of understanding, it is so done.

The focus of Linear Statistical Models: An Applied Approach, Second Editon, is on the conceptual,

concrete, and applied aspects of model building, data analysis, and interpretaion. Without sacrificing depth and breadth of coverage, Bruce L. Bowerman and Richard T. O'Connell's clear and concise explanantions make the material accessible even to those with limited statistical experience. Generalized Linear Mixed Models: Modern Concepts, Methods and Applications presents an introduction to linear modeling using the generalized linear mixed model (GLMM) as an overarching conceptual framework. For readers new to linear models, the book helps them see the big picture. It shows how linear models fit with the rest of the core statistics curriculum and points out the major issues that statistical modelers must consider. Along with describing common applications of GLMMs, the text introduces the essential theory and main methodology associated with linear models that accommodate random model effects and non-Gaussian data. Unlike traditional linear model textbooks that focus on normally distributed data, this one adopts a generalized mixed model approach throughout: data for linear modeling need not be normally distributed and effects may be fixed or random. With numerous examples using SAS® PROC GLIMMIX, this book is ideal for graduate students in statistics, statistics professionals seeking to update their knowledge, and researchers new to the generalized linear model thought process. It focuses on data-driven processes and provides context for extending traditional linear model thinking to generalized linear mixed modeling. See

Professor Stroup discuss the book.
"This entry-level text offers clear and concise guidelines on how to select, construct, interpret, and evaluate count data. Written for researchers with little or no background in advanced statistics, the book presents treatments of all major models using numerous tables, insets, and detailed modeling suggestions. It begins by demonstrating the fundamentals of linear regression and works up to an analysis of the Poisson and negative binomial models, and to the problem of overdispersion. Examples in Stata, R, and SAS code enable readers to adapt models for their own purposes, making the text an ideal resource for researchers working in public health, ecology, econometrics, transportation, and other related fields"--
Emphasizing conceptual understanding over mathematics, this user-friendly text introduces linear regression analysis to students and researchers across the social, behavioral, consumer, and health sciences. Coverage includes model construction and estimation, quantification and measurement of multivariate and partial associations, statistical control, group comparisons, moderation analysis, mediation and path analysis, and regression diagnostics, among other important topics. Engaging worked-through examples demonstrate each technique, accompanied by helpful advice and cautions. The use of SPSS, SAS, and STATA is emphasized, with an appendix on regression analysis using R. The companion website (www.afhayes.com) provides datasets for the book's examples as well as the RLM macro for SPSS and SAS.

Pedagogical Features: *Chapters include SPSS, SAS, or STATA code pertinent to the analyses described, with each distinctively formatted for easy identification. *An appendix documents the RLM macro, which facilitates computations for estimating and probing interactions, dominance analysis, heteroscedasticity-consistent standard errors, and linear spline regression, among other analyses. *Students are guided to practice what they learn in each chapter using datasets provided online. *Addresses topics not usually covered, such as ways to measure a variable's importance, coding systems for representing categorical variables, causation, and myths about testing interaction. Applicable for all statistics courses or practical use, teaches how to understand more advanced multivariate statistical methods, as well as how to use available software packages to get correct results. Study problems and examples culled from biomedical research illustrate key points. New to this edition: broadened coverage of ANOVA (traditional analysis of variance), the addition of ANCOVA (analysis of Co-Variance); updated treatment of available statistics software; 2 new chapters (Analysis of Variance Extensions and Mixing Regression and ANOVA: ANCOVA).
Building Better Models with JMP® Pro provides an example-based introduction to business analytics, with a proven process that guides you in the application of modeling tools and concepts. It gives you the "what, why, and how" of using JMP® Pro for building and applying analytic models. This book is designed for business analysts, managers, and practitioners who may

not have a solid statistical background, but need to be able to readily apply analytic methods to solve business problems. In addition, this book will greatly benefit faculty members who teach any of the following subjects at the lower to upper graduate level: predictive modeling, data mining, and business analytics. Novice to advanced users in business statistics, business analytics, and predictive modeling will find that it provides a peek inside the black box of algorithms and the methods used. Topics include: regression, logistic regression, classification and regression trees, neural networks, model cross-validation, model comparison and selection, and data reduction techniques. Full of rich examples, Building Better Models with JMP Pro is an applied book on business analytics and modeling that introduces a simple methodology for managing and executing analytics projects. No prior experience with JMP is needed. Make more informed decisions from your data using this newest JMP book.
Linear Models: An Integrated Approach aims to provide a clearand deep understanding of the general linear model using simplestatistical ideas. Elegant geometric arguments are also invoked asneeded and a review of vector spaces and matrices is provided to makethe treatment self-contained.
Applied Linear Statistical Models 5e is the long established leading authoritative text and reference on statistical modeling. For students in most any discipline where statistical analysis or interpretation is used, ALSM serves as the standard work. The text includes brief introductory and review material, and then proceeds through regression and modeling

for the first half, and through ANOVA and Experimental Design in the second half. All topics are presented in a precise and clear style supported with solved examples, numbered formulae, graphic illustrations, and "Notes" to provide depth and statistical accuracy and precision. Applications used within the text and the hallmark problems, exercises, and projects are drawn from virtually all disciplines and fields providing motivation for students in virtually any college. The Fifth edition provides an increased use of computing and graphical analysis throughout, without sacrificing concepts or rigor. In general, the 5e uses larger data sets in examples and exercises, and where methods can be automated within software without loss of understanding, it is so done.

This must-have manual provides detailed solutions to all of the 200+ exercises in Dickson, Hardy and Waters' Actuarial Mathematics for Life Contingent Risks, Second Edition. This groundbreaking text on the modern mathematics of life insurance is required reading for the Society of Actuaries' Exam MLC and also provides a solid preparation for the life contingencies material of the UK actuarial profession's exam CT5. Beyond the professional examinations, the textbook and solutions manual offer readers the opportunity to develop insight and understanding, and also offer practical advice for solving problems using straightforward, intuitive numerical methods. Companion spreadsheets illustrating these techniques are available for free download.

A classic that just keeps getting better, The Little SAS Book is essential for anyone learning SAS programming. Lora Delwiche and Susan Slaughter offer a user-friendly approach so that readers can quickly and easily learn the most commonly used features of the SAS language. Each topic is presented in a self-contained, two-page layout complete with examples and graphics. Nearly every section has been

revised to ensure that the sixth edition is fully up-to-date. This edition is also interface-independent, written for all SAS programmers whether they use SAS Studio, SAS Enterprise Guide, or the SAS windowing environment. New sections have been added covering PROC SQL, iterative DO loops, DO WHILE and DO UNTIL statements, %DO statements, using variable names with special characters, the ODS EXCEL destination, and the XLSX LIBNAME engine. This title belongs on every SAS programmer's bookshelf. It's a resource not just to get you started, but one you will return to as you continue to improve your programming skills. Explanatory Model Analysis Explore, Explain and Examine Predictive Models is a set of methods and tools designed to build better predictive models and to monitor their behaviour in a changing environment. Today, the true bottleneck in predictive modelling is neither the lack of data, nor the lack of computational power, nor inadequate algorithms, nor the lack of flexible models. It is the lack of tools for model exploration (extraction of relationships learned by the model), model explanation (understanding the key factors influencing model decisions) and model examination (identification of model weaknesses and evaluation of model's performance). This book presents a collection of model agnostic methods that may be used for any black-box model together with real-world applications to classification and regression problems. There are two approaches to undergraduate and graduate courses in linear statistical models and experimental design in applied statistics. One is a two-term sequence focusing on regression followed by ANOVA/Experimental design. Applied Linear Statistical Models serves that market. It is offered in business, economics, statistics, industrial engineering, public health, medicine, and psychology departments in four-year colleges and universities, and graduate schools. Applied Linear Statistical Models is the leading text in the market. It is

noted for its quality and clarity, and its authorship is first-rate. The approach used in the text is an applied one, with an emphasis on understanding of concepts and exposition by means of examples. Sufficient theoretical foundations are provided so that applications of regression analysis can be carried out comfortably. The fourth edition has been updated to keep it current with important new developments in regression analysis.

This book is a concise and innovative book that gives a complete presentation of the design and analysis of experiments in approximately one half the space of competing books. With only the modest prerequisite of a basic (non-calculus) statistics course, this text is appropriate for the widest possible audience. Two procedures are generally used to analyze experimental design data—analysis of variance (ANOVA) and regression analysis. Because ANOVA is more intuitive, this book devotes most of its first three chapters to showing how to use ANOVA to analyze balanced (equal sample size) experimental design data. The text first discusses regression analysis at the end of Chapter 2, where regression is used to analyze data that cannot be analyzed by ANOVA: unbalanced (unequal sample size) data from two-way factorials and data from incomplete block designs. Regression is then used again in Chapter 4 to analyze data resulting from two-level fractional factorial and block confounding experiments.

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