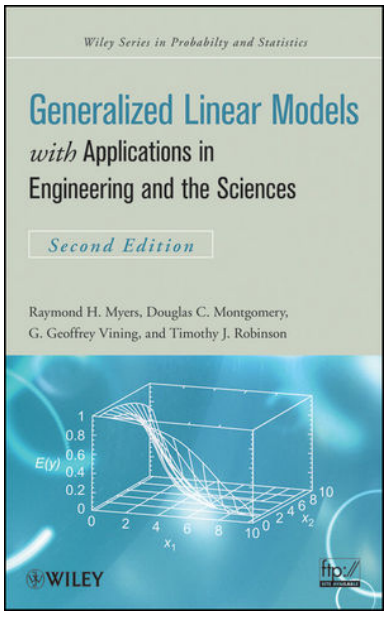

Generalized Linear Models: with Applications in Engineering and the Sciences, 2nd Edition

Raymond H. Myers, Douglas C. Montgomery, G. Geoffrey Vining, Timothy J. Robinson

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DESCRIPTION

Praise for the First Edition

"The obvious enthusiasm of Myers, Montgomery, and Vining and their reliance on their many examples as a major focus of their pedagogy make Generalized Linear Models a joy to read. Every statistician working in any area of applied science should buy it and experience the excitement of these new approaches to familiar activities."
—Technometrics

Generalized Linear Models: With Applications in Engineering and the Sciences, Second Edition continues to provide a clear introduction to the theoretical foundations and key applications of generalized linear models (GLMs). Maintaining the same nontechnical approach as its predecessor, this update has been thoroughly extended to include the latest developments, relevant computational approaches, and modern examples from the fields of engineering and physical sciences.

This new edition maintains its accessible approach to the topic by reviewing the various types of problems that support the use of GLMs and providing an overview of the basic, related concepts such as multiple linear regression, nonlinear regression, least squares, and the maximum likelihood estimation procedure. Incorporating the latest developments, new features of this Second Edition include:

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A new chapter on random effects and designs for GLMs

- A thoroughly revised chapter on logistic and Poisson regression, now with additional results on goodness of fit testing, nominal and ordinal responses, and overdispersion
- A new emphasis on GLM design, with added sections on designs for regression models and optimal designs for nonlinear regression models
- Expanded discussion of weighted least squares, including examples that illustrate how to estimate the weights
- Illustrations of R code to perform GLM analysis

The authors demonstrate the diverse applications of GLMs through numerous examples, from classical applications in the fields of biology and biopharmaceuticals to more modern examples related to engineering and quality assurance. The *Second Edition* has been designed to demonstrate the growing computational nature of GLMs, as SAS®, Minitab®, JMP®, and R software packages are used throughout the book to demonstrate fitting and analysis of generalized linear models, perform inference, and conduct diagnostic checking. Numerous figures and screen shots illustrating computer output are provided, and a related FTP site houses supplementary material, including computer commands and additional data sets.

Generalized Linear Models, Second Edition is an excellent book for courses on regression analysis and regression modeling at the upper-undergraduate and graduate level. It also serves as a valuable reference for engineers, scientists, and statisticians who must understand and apply GLMs in their work.

ABOUT THE AUTHOR

Raymond H. Myers, PhD, is Professor Emeritus in the Department of Statistics at Virginia Polytechnic Institute and State University. He has more than forty years of academic experience in the areas of experimental design and analysis, response surface analysis, and designs for nonlinear models. A Fellow of the American Statistical Society, Dr. Myers is the coauthor of

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Douglas C. Montgomery, PhD, is Regents' Professor of Industrial Engineering and Statistics at Arizona State University. Dr. Montgomery has more than thirty years of academic and consulting experience and has devoted his research to engineering statistics, specifically the design and analysis of experiments. He has authored or coauthored numerous journal articles and twelve books, including *Response Surface Methodology: Process and Product Optimization Using Designed Experiments, Third Edition; Introduction to Linear Regression Analysis, Fourth Edition;* and *Introduction to Time Series Analysis and Forecasting,* all published by Wiley.

G. Geoffrey Vining, PhD, is Professor in the Department of Statistics at Virginia Polytechnic Institute and State University. A Fellow of both the American Statistical Association and the American Society for Quality, Dr. Vining is also the coauthor of *Introduction to Linear Regression Analysis, Fourth Edition* (Wiley).

Timothy J. Robinson, PhD, is Associate Professor in the Department of Statistics at the University of Wyoming. He has written numerous journal articles in the areas of design of experiments, response surface methodology, and applications of categorical data analysis in engineering, medicine, and the environmental sciences.

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The authors now provide a new emphasis on GLM design, with new sections on designs for regression models, optimal designs for nonlinear regression models, and a new chapter on experimental designs of

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