Applied Statistics And Sas Programming Language

Learn by doing as you work through the programming problems offered in this unique book! Beginning with problems related to the DATA step, moving to elementary and then advanced exercises on frequently used SAS procedures, and also covering problems in statistical analysis, the book offers challenges for beginning, intermediate, and advanced programmers. Students, teachers, and trainers will be able to work with Base SAS procedures such as FORMAT, PRINT, TABULATE, and PLOT; solve simple descriptive statistics problems as well as those using the FREQ, TTEST, GLM, ANOVA, and NPAR1WAY procedures; and have fun with some SAS brainteasers in the book's last section. Each chapter gives readers a good start on solving the problem by providing directions and hints about useful programming tools. As a service to our educational market, look for The SAS Workbook Solutions sold separately. This book is part of the SAS Press program. Introduces a range of data analysis problems encountered in drug development and illustrates them using case studies from actual pre-clinical experiments and clinical studies. Includes a discussion of methodological issues, practical advice from subject matter experts, and review of relevant regulatory guidelines.

Quick and Easy Access to Key Elements of Documentation Includes worked examples across a wide variety of applications, tasks, and graphics A unique companion for statistical coders, Using SAS for Data Management, Statistical Analysis, and Graphics presents an easy way to learn how to perform an analytical task in SAS, without having to navigate through the extensive, idiosyncratic, and sometimes unwieldy software documentation. Organized by short, clear descriptive entries, the book covers many common tasks, such as data management, descriptive summaries, inferential procedures, regression analysis, multivariate methods, and the creation of graphics. Through the extensive indexing, cross-referencing, and worked examples in this text, users can directly find and implement the material they need. The text includes convenient indices organized by topic and SAS syntax. Demonstrating the SAS code in action and facilitating exploration, the authors present example analyses that employ a single data set from the HELP study. They also provide several case studies of more complex applications. Data sets and code are available for download on the book's website. Helping to improve your analytical skills, this book lucidly summarizes the features of SAS most often used by statistical analysts. New users of SAS will find the simple approach easy to understand while more expert SAS programmers will appreciate the invaluable source of task-oriented information.

This title details useful techniques for conducting operations between observations in a SAS data set. For quick reference, the book is conveniently organized to cover tools, case studies, and macros. Beginning to intermediate SAS users will appreciate this book's informative, easy-to-comprehend style.

In an instructive and conversational tone, Cody clearly explains how to program SAS, illustrating with one or more real-life examples and giving a detailed description of how the program works.

The book will be designed primarily for graduate students (or advanced undergraduates) who are learning psychometrics, as well as professionals in the field who need a reference for use in their practice. We would assume that users have some basic knowledge of using SAS to read data and conduct basic analyses (e.g., descriptive statistics, frequency distributions). In addition, the reader should be familiar with basic statistical concepts such as descriptive statistics (e.g., mean, median, variance, standard deviation), percentiles and the rudiments of hypothesis testing. They should also have a passing familiarity with issues in psychometrics such as reliability, validity and test/survey scoring. We will not assume any more than basic familiarity with these issues, and will devote a portion of each chapter (as well as the entire first chapter) to reviewing many of these basic ideas for those not familiar with them. We envision the book as being useful either as a primary text for a course on applied measurement where SAS is the main platform for instruction, or as a supplement to a more theoretical text. We also anticipate that readers working in government agencies responsible for testing and measurement issues at the local, state and national levels, and private testing, survey and market research companies, as well as faculty members needing a practical resource for psychometric practice will serve as a market for the book. In short, the readership would include graduate students, faculty members, data analysts and psychometricians responsible for analysis of survey response data, as well as educational and psychological assessments. The goal of the book is to provide readers with the tools necessary for assessing the psychometric qualities of educational and psychological measures as well as surveys and questionnaires. Each chapter will cover an issue pertinent to psychometric and measurement practice, with an emphasis on application. Topics will be briefly discussed from a theoretical/technical perspective in order to provide the reader with the background necessary to correctly use and interpret the statistical analyses that will be presented subsequently. Readers will then be presented with examples illustrating a particular concept (e.g., reliability). These examples will include a discussion of the particular analysis, along with the SAS code necessary to conduct them. The resulting output will then be discussed in detail, focusing on the interpretation of the results. Finally, examples of how these results might be written up will also be included in the text. It is hoped that this mixture of theory with examples of actual practice will serve the reader both as a pedagogical tool and as a reference work.

Aimed at beginners who have downloaded the free SAS University Edition and want to either use the point-and-click interactive environment of SAS Studio, or who want to write their own SAS programs, or both, this book begins by showing you how to obtain the SAS University Edition, and how you can run SAS on a PC or Macintosh computer. Topics include: performing basic tasks, such as producing a report, summarizing data, producing charts and graphs, and using the SAS Studio built-in tasks; performing basic statistical tests using the interactive point-and-click environment; how to write your own SAS programs, and how to use SAS procedures to perform a variety of tasks; how to read data from a variety of sources: text files, Excel workbooks, and CSV files. In order to get familiar with the SAS Studio environment, this book also shows you how to access dozens of interesting data sets that are included with the product. --

This book provides solutions to the problems in The SAS Workbook. Use it to compare your own programs to those created by the author of the problems workbook. Alternate solutions are offered for a number of the problems. This book is part of the SAS Press program.

This book presents the basic procedures for utilizing SAS Enterprise Guide to analyze statistical data. SAS Enterprise Guide is a graphical user interface (point and click) to the main SAS application. Each chapter contains a brief conceptual overview and then guides the reader through concrete step-by-step examples to complete the analyses. The eleven sections of the book cover a wide range of statistical procedures including descriptive statistics, correlation and simple regression, t tests, one-way chi square, data transformations, multiple regression, analysis of variance, analysis of covariance, multivariate analysis of variance, factor analysis, and canonical correlation analysis. Designed to be used either as a stand-alone resource or as an accompaniment to a statistics course, the book offers a smooth path to statistical analysis with SAS Enterprise Guide for advanced undergraduate and beginning graduate students, as well as professionals in psychology, education, business, health, social work, sociology, and many other fields.

This volume provides background theory and practical protocols for bioassays of bacteria, viruses, fungi and nematodes that can be used as biological control agents against insect pests of agricultural and medical importance.

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In SAS Statistics by Example, Ron Cody offers up a cookbook approach for doing statistics with SAS. Structured specifically around the most commonly used statistical tasks or techniques--for example, comparing two means, ANOVA, and regression--this book provides an easy-to-follow, how-to approach to statistical analysis not found in other books. For each statistical task, Cody includes heavily annotated examples using ODS Statistical Graphics procedures such as SGPLOT, SGSCATTER, and SGPANEL that show how SAS can produce the required statistics. Also, you will learn how to test the assumptions for all relevant statistical tests. Major topics featured include descriptive statistics,

one- and two-sample tests, ANOVA, correlation, linear and multiple regression, analysis of categorical data, logistic regression, nonparametric techniques, and power and sample size. This is not a book that teaches statistics. Rather, SAS Statistics by Example is perfect for intermediate to advanced statistical programmers who know their statistics and want to use SAS to do their analyses. This book is part of the SAS Press program.

This book is designed in making statisticians, researchers, and programmers aware of the awesome new product now available in SAS called Enterprise Miner. The book will also make readers get familiar with the neural network forecasting methodology in statistics. One of the goals to this book is making the powerful new SAS module called Enterprise Miner easy for you to use with step-by-step instructions in creating a Enterprise Miner process flow diagram in preparation to data-mining analysis and neural network forecast modeling. Topics discussed in this book An overview to traditional regression modeling. An overview to neural network modeling. Numerical examples of various neural network designs and optimization techniques. An overview to the powerful SAS product called Enterprise Miner. An overview to the SAS neural network modeling procedure called PROC NEURAL. Designing a SAS Enterprise Miner process flow diagram to perform neural network forecast modeling and traditional regression modeling with an explanation to the various configuration settings to the Enterprise Miner nodes used in the analysis. Comparing neural network forecast modeling estimates with traditional modeling estimates based on various examples from SAS manuals and literature with an added overview to the various modeling designs and a brief explanation to the SAS modeling procedures, option statements, and corresponding SAS output listings.

"SAS Programming and Data Analysis is an instructional manual on programming with SAS and the general syntax of the SAS software. The Statistical Analysis System was developed by, and is proprietary to the SAS Institute, Cary, North Carolina. SAS is an integrated software that enables the user to enter, retrieve, manage, and analyze data in different ways. It has become one of the foremost software programs for business, government, and industry. Additionally, SAS is the software of choice for most institutions graduating majors and minor in Statistics."--Back cover.

The key to ensuring accurate data is having clean data. This book develops and describes data cleaning programs and macros. You can use many of the programs and macros that are provided, as is, or you can modify them for your own special data cleaning tasks. Ron has carefully explained and documented each of the programs and macros, thus providing you with SAS programming instruction on an intermediate-to-advanced level. Written in Ron's signature informal, tutorial style, this book gives anyone who manages data thoroughly documented, step-by-step instructions for the development of data cleaning programs and macros. Book jacket.

This textbook for a second course in basic statistics for undergraduates or first-year graduate students introduces linear regression models and describes other linear models including Poisson regression, logistic regression, proportional hazards regression, and nonparametric regression. Numerous examples drawn from the news and current events with an emphasis on health issues illustrate these concepts. Assuming only a pre-calculus background, the author keeps equations to a minimum and demonstrates all computations using SAS. Most of the programs and output are displayed in a self-contained way, with an emphasis on the interpretation of the output in terms of how it relates to the motivating example. Plenty of exercises conclude every chapter. All of the datasets and SAS programs are available from the book's website, along with other ancillary material.

Cody's Collection of Popular SAS Programming Tasks and How to Tackle Them presents often-used programming tasks that readers can either use as presented or modify to fit their own programs, all in one handy volume. Esteemed author and SAS expert Ron Cody covers such topics as character to numeric conversion, automatic detection of numeric errors, combining summary data with detail data, restructuring a data set, grouping values using several innovative methods, performing an operation on all character or all numeric variables in a SAS data set, and much more! SAS users of all levels interested in improving their programming skills will benefit from this easy-to-follow collection of tasks.SAS Products and Releases: Base SAS: 9.3_M2, 9.3_M1, 9.3, 9.21_M3, 9.21_M2, 9.21_M1, 9.21, 9.2, 9.1.3, 9.1.2, 9.1, 9.0 SAS Enterprise Guide: 9.1.3, 9.1.2, 9.1, 9.0 Operating Systems: All

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Fully updated for SAS 9.2, Ron Cody's SAS Functions by Example, Second Edition, is a must-have reference for anyone who programs in Base SAS. With the addition of functions new to SAS 9.2, this comprehensive reference manual now includes more than 200 functions, including new character, date and time, distance, probability, sort, and special functions. This new edition also contains more examples for existing functions and more details concerning optional arguments. Like the first edition, the new edition also includes a list of SAS programs, an alphabetic list of all the functions in the book, and a comprehensive index of functions and tasks. Beginning and experienced SAS users will benefit from this useful reference guide to SAS functions. This book is part of the SAS Press program.

This book is intended for use as the textbook in a second course in applied statistics that covers topics in multiple regression and analysis of variance at an intermediate level. Generally, students enrolled in such courses are p- marily graduate majors or advanced undergraduate students from a variety of disciplines. These students typically have taken an introductory-level s- tistical methods course that requires the use a software system such as SAS for performing statistical analysis. Thus students are expected to have an - derstanding of basic concepts of statistical inference such as estimation and hypothesis testing. Understandably, adequate time is not available in a ?rst course in stat- tical methods to cover the use of a software system adequately in the amount of time available for instruction. The aim of this book is to teach how to use the SAS system for data analysis. The SAS language is introduced at a level of sophistication not found in most introductory SAS books. Important features such as SAS data step programming, pointers, and line-hold spe- ?ers are described in detail. The powerful graphics support available in SAS is emphasized throughout, and many worked SAS program examples contain graphic components.

Never HIGHLIGHT a Book Again Includes all testable terms, concepts, persons, places, and events. Cram101 Just the FACTS101 studyguides gives all of the outlines, highlights, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanies: 9780872893795. This item is printed on demand.

The aim of this textbook (previously titled SAS for Data Analytics) is to teach the use of SAS for statistical analysis of data for advanced undergraduate and graduate students in statistics, data science, and disciplines involving analyzing data. The book begins with an introduction beyond the basics of SAS, illustrated with non-trivial, real-world, worked examples. It proceeds to SAS programming and applications, SAS graphics, statistical analysis of regression models, analysis of variance models, analysis of variance with random and mixed effects models, and then takes the discussion beyond regression and analysis of variance to conclude. Pedagogically, the authors introduce theory and methodological basis topic by topic, present a problem as an application, followed by a SAS analysis of the data provided and a discussion of results. The text focuses on applied statistical problems and methods. Key features include: end of chapter exercises, downloadable SAS code and data sets, and advanced material suitable for a second course in applied statistics with every method explained using SAS analysis to illustrate a real-world problem. New to this edition: • Covers SAS v9.2 and incorporates new commands • Uses SAS ODS (output delivery system) for reproduction of tables and

graphics output • Presents new commands needed to produce ODS output • All chapters rewritten for clarity • New and updated examples throughout • All SAS outputs are new and updated, including graphics • More exercises and problems • Completely new chapter on analysis of nonlinear and generalized linear models • Completely new appendix Mervyn G. Marasinghe, PhD, is Associate Professor Emeritus of Statistics at Iowa State University, where he has taught courses in statistical methods and statistical computing. Kenneth J. Koehler, PhD, is University Professor of Statistics at Iowa State University, where he teaches courses in statistical methodology at both graduate and undergraduate levels and primarily uses SAS to supplement his teaching.

Applied Statistics and the SAS Programming LanguageApplied Statistics and the SAS Programming Language Applied Statistics and the S.A.S. Programming LanguageApplied statistics and the SAS programming languageApplied Statistics and the SAS Programming LanguageSAS for Data AnalysisIntermediate Statistical MethodsSpringer Science & Business Media

To write an accomplished program in the DATA step of SAS®, programmers must understand programming logic and know how to implement and even create their own programming algorithm. Handbook of SAS® DATA Step Programming shows readers how best to manage and manipulate data by using the DATA step. The book helps novices avoid common mistakes resulting from a lack of understanding fundamental and unique SAS programming concepts. It explains that learning syntax does not solve all problems; rather, a thorough comprehension of SAS processing is needed for successful programming. The author also guides readers through a programming task. In most of the examples, the author first presents strategies and steps for solving the problem, then offers a solution, and finally gives a more detailed explanation of the solution. Understanding the DATA steps, particularly the program data vector (PDV), is critical to proper data manipulation and management in SAS. This book helps SAS programmers thoroughly grasp the concept of DATA step processing and write accurate programs in the DATA step. Numerous supporting materials, including data sets and programs used in the text, are available on the book's CRC Press web page.

A must-have tool for anyone who writes programs in Base SAS, this guide defines and illustrates more than 180 of the most useful SAS language functions. Written as both a reference manual and an instructional guide, it covers 48 functions that are new for SAS 9.1.

Second Edition SAS® PROGRAMMING FOR RESEARCHERS AND SOCIAL SCIENTISTS By PAUL E. SPECTOR, University of South Florida University of South Florida "Just what the novice SAS programmer needs, particularly those who have no real programming experience. For example, branching is one of the more difficult programming commands for students to implement and the author does an excellent job of explaining this topic clearly and at a basic level. A big plus is the Common Errors section since students will definitely encounter errors." a?Robert Pavur, Management Science, University of North Texas The book that won accolades from thousands has been completely revised! Taking a problem solving approach that focuses on common programming tasks that social scientists encounter in doing data analysis, Spector uses sample programs and examples from social science problems to show readers how to write orderly programs and avoid excessive and disorganized branching. He provides readers with a three-step approach (preplanning, writing the program, and debugging) and tips about helpful features and practices as well as how to avoid certain pitfalls. "Spector has done an excellent job in explaining a somewhat difficult topic in a clear and concise manner. I like the fact that screen captures are included. It allows students to better follow what is being described in the book in relation to what is on the screen." a?Philip Craiger, Computer Science, University of Nebraska, Omaha ThisA bookA provides readers with even more practical tips and advice. New features in this edition include: *New sections on debugging in each chapter that provide advice about common errors *End of chapter Debugging Exercises that offer readers the chance to practice spotting the errors in the sample programs *New section in Chapter 1 on how to use the interface, including how to work with three separate windows, where to write the program, executing the program, managing the program files, and using the F key *Five new appendices, including a Glossary of Programming Terms, A Summary of SAS Language Statements, A Summary of SAS PROCs, Information Sources for SAS PROCs, and Corrections for the Debugging Exercises *Plus, a link to Spector's online SAS course! Appropriate for readers with little or no knowledge of the SAS language, this book will enable readers to run each example, adapt the examples to real problems that the reader may have, and create a program. "A solid introduction to programming in SAS, with a good, brief explanation of how that process differs from the usual point-and-click of Windows-based software such as SPSS and a spreadsheet. Even uninformed students can use it as a guide to creating SAS datasets, manipulating them, and writing programs in the SAS language that will produce all manner of statistical results." a?James P. Whittenburg, History, College of William & Mary A "Bridges the gap between programming syntax and programming applications. In contrast to other books on SAS programming, this book combines a clear explanation of the SAS language with a problem-solving approach to writing a SAS program. It provides the novice programmer with a useful and meaningful model for solving the types of programming problems encountered by re

Develop and fine-tune your programming skills the easy way--by example! For beginning or intermediate users, this book serves as a guide, using a series of annotated examples, through basic tasks to more complex ones. Problems and solutions are provided to help you make the most of the programming tools available in Base SAS software. Conversational in tone, the book is useful both as a tutorial for learning programming and as a convenient quick-reference filled with tips and strategies for solving your programming problems. Among the clearly explained examples are models that show you how to build SAS data sets, use SAS functions for data translation, program more efficiently, relate information from multiple sources, and chart and plot data. You will also learn to work with SAS date values, produce descriptive and summary statistics, and write reports.

Most books on data mining focus on principles and furnish few instructions on how to carry out a data mining project.

Data Mining Using SAS Applications not only introduces the key concepts but also enables readers to understand and successfully apply data mining methods using powerful yet user-friendly SAS macro-call files. These methods stress the use of visualization to thoroughly study the structure of data and check the validity of statistical models fitted to data. Learn how to convert PC databases to SAS data Discover sampling techniques to create training and validation samples Understand frequency data analysis for categorical data Explore supervised and unsupervised learning Master exploratory graphical techniques Acquire model validation techniques in regression and classification The text furnishes 13 easy-to-use SAS data mining macros designed to work with the standard SAS modules. No additional modules or previous experience in SAS programming is required. The author shows how to perform complete predictive modeling, including data exploration, model fitting, assumption checks, validation, and scoring new data, on SAS datasets in less than ten minutes!

Learn data science concepts with real-world examples in SAS! End-to-End Data Science with SAS: A Hands-On Programming Guide provides clear and practical explanations of the data science environment, machine learning techniques, and the SAS programming knowledge necessary to develop machine learning models in any industry. The book covers concepts including understanding the business need, creating a modeling data set, linear regression, parametric classification models, and non-parametric classification models. Real-world business examples and example code are used to demonstrate each process step-by-step. Although a significant amount of background information and supporting mathematics are presented, the book is not structured as a textbook, but rather it is a user's guide for the application of data science and machine learning in a business environment. Readers will learn how to think like a data scientist, wrangle messy data, choose a model, and evaluate the model's effectiveness. New data scientists or professionals who want more experience with SAS will find this book to be an invaluable reference. Take your data science career to the next level by mastering SAS programming for machine learning models.

A step-by-step introduction to using SAS® statistical software as a foundational approach to data analysis and interpretation Presenting a straightforward introduction from the ground up, SAS® Essentials: Mastering SAS for Data Analytics, Second Edition illustrates SAS using hands-on learning techniques and numerous real-world examples. Keeping different experience levels in mind, the highly-qualified author team has developed the book over 20 years of teaching introductory SAS courses. Divided into two sections, the first part of the book provides an introduction to data manipulation, statistical techniques, and the SAS programming language. The second section is designed to introduce users to statistical analysis using SAS Procedures. Featuring self-contained chapters to enhance the learning process, the Second Edition also includes: Programming approaches for the most up-to-date version of the SAS platform including information on how to use the SAS University Edition Discussions to illustrate the concepts and highlight key fundamental computational skills that are utilized by business, government, and organizations alike New chapters on reporting results in tables and factor analysis Additional information on the DATA step for data management with an emphasis on importing data from other sources, combining data sets, and data cleaning Updated ANOVA and regression examples as well as other data analysis techniques A companion website with the discussed data sets, additional code, and related PowerPoint® slides SAS Essentials: Mastering SAS for Data Analytics, Second Edition is an ideal textbook for upper-undergraduate and graduate-level courses in statistics, data analytics, applied SAS programming, and statistical computer applications as well as an excellent supplement for statistical methodology courses. The book is an appropriate reference for researchers and academicians who require a basic introduction to SAS for statistical analysis and for preparation for the Basic SAS Certification Exam.

Applied Statistics for the Social and Health Sciences provides graduate students in the social and health sciences with the basic skills that they need to estimate, interpret, present, and publish statistical models using contemporary standards. The book targets the social and health science branches such as human development, public health, sociology, psychology, education, and social work in which students bring a wide range of mathematical skills and have a wide range of methodological affinities. For these students, a successful course in statistics will not only offer statistical content but will also help them develop an appreciation for how statistical techniques might answer some of the research questions of interest to them. This book is for use in a two-semester graduate course sequence covering basic univariate and bivariate statistics and regression models for nominal and ordinal outcomes, in addition to covering ordinary least squares regression. Key features of the book include: interweaving the teaching of statistical concepts with examples developed for the course from publicly-available social science data or drawn from the literature thorough integration of teaching statistical theory with teaching data processing and analysis teaching of both SAS and Stata "side-by-side" and use of chapter exercises in which students practice programming and interpretation on the same data set and course exercises in which students can choose their own research questions and data set. This book is for a two-semester course. For a one-semester course, see http://www.routledge.com/9780415991544/

The most thorough and up-to-date introduction to data mining techniques using SAS Enterprise Miner. The Sample, Explore, Modify, Model, and Assess (SEMMA) methodology of SAS Enterprise Miner is an extremely valuable analytical tool for making critical business and marketing decisions. Until now, there has been no single, authoritative book that explores every node relationship and pattern that is a part of the Enterprise Miner software with regard to SEMMA design and data mining analysis. Data Mining Using SAS Enterprise Miner introduces readers to a wide variety of data mining techniques and explains the purpose of-and reasoning behind-every node that is a part of the Enterprise Miner software. Each chapter begins with a short introduction to the assortment of statistics that is generated from the various nodes in SAS Enterprise Miner v4.3, followed by detailed explanations of configuration settings that are located within each node. Features of the book include: The exploration of node relationships and patterns using data from an assortment of computations, charts, and graphs commonly used in SAS procedures A step-by-step approach to each node discussion,

along with an assortment of illustrations that acquaint the reader with the SAS Enterprise Miner working environment Descriptive detail of the powerful Score node and associated SAS code, which showcases the important of managing, editing, executing, and creating custom-designed Score code for the benefit of fair and comprehensive business decision-making Complete coverage of the wide variety of statistical techniques that can be performed using the SEMMA nodes An accompanying Web site that provides downloadable Score code, training code, and data sets for further implementation, manipulation, and interpretation as well as SAS/IML software programming code This book is a well-crafted study guide on the various methods employed to randomly sample, partition, graph, transform, filter, impute, replace, cluster, and process data as well as interactively group and iteratively process data while performing a wide variety of modeling techniques within the process flow of the SAS Enterprise Miner software. Data Mining Using SAS Enterprise Miner is suitable as a supplemental text for advanced undergraduate and graduate students of statistics and computer science and is also an invaluable, all-encompassing guide to data mining for novice statisticians and experts alike.

Statistical Data Mining Using SAS Applications, Second Edition describes statistical data mining concepts and demonstrates the features of user-friendly data mining SAS tools. Integrating the statistical and graphical analysis tools available in SAS systems, the book provides complete statistical data mining solutions without writing SAS program co Easy-to-read and comprehensive, this book shows how the SAS System performs multivariate time series analysis and features the advanced SAS procedures STATSPACE, ARIMA, and SPECTRA. The interrelationship of SAS/ETS procedures is demonstrated with an accompanying discussion of how the choice of a procedure depends on the data to be analysed and the reults desired. Other topics covered include detecting sinusoidal components in time series models and performing bivariate corr-spectral analysis and comparing the results with the standard transfer function methodology. The authors? unique approach to integrating students in a variety of disciplines and industries. Emphasis is on correct interpretation of output to draw meaningful conclusions. The volume, co-pubished by SAS and JWS, features both theory and practicality, and accompanies a soon-to-be extensive library of SAS hands-on manuals in a multitude of statistical areas. The book can be used with a number of hardware-specific computing machines including CMS, Mac, MVS, Opem VMS Alpha, Opmen VMS VAX, OS/390, OS/2, UNIX, and Windows.