Advanced Techniques Of Population Analysis The Springer Series On Demographic Methods And Population Analysis

Population statistics and demographic analysis, sampling and survey methods, agricultural surveys and censuses, economic surveys and censuses, computer data systems.

In the late 1980s, the National Cancer Institute initiated an investigation of cancer risks in populations near 52 commercial nuclear power plants and 10 Department of Energy nuclear facilities (including research and nuclear weapons production facilities and one reprocessing plant) in the United States. The results of the NCI investigation were used a primary resource for communicating with the public about the cancer risks near the nuclear facilities. However, this study is now over 20 years old. The U.S. Nuclear Regulatory Commission requested that the National Academy of Sciences provide an updated assessment of cancer risks in populations near USNRC-licensed nuclear facilities that utilize or process uranium for the production of electricity. Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase 1 focuses on identifying scientifically sound approaches for carrying out an assessment of cancer risks associated with living near a nuclear facility, judgments about the strengths and weaknesses of various statistical power, ability to assess potential confounding factors, possible biases, and required effort. The results from this Phase 1 study will be used to inform the design of cancer risk assessment, which will be carried out in Phase 2. This report is beneficial for the general public, communities near nuclear facilities, stakeholders, healthcare providers, policy makers, state and local officials, community leaders, and the media.

Clinical microbiologists are engaged in the field of diagnostic microbiology to determine whether pathogenic microorganisms are present in clinical specimens collected from patients with suspected infections. If microorganisms are found, these are identified and susceptibility profiles, when indicated, are determined. During the past two decades, technical advances in the field of diagnostic microbiology have made constant and enormous progress in various areas, including bacteriology, mycology, mycobacteriology, parasitology, and virology. The diagnostic capabilities of modern clinical microbiology laboratories have improved rapidly and have expanded greatly due to a technological revolution in molecular aspects of microbiology and immunology. In particular, rapid techniques for nucleic acid amplification and characterization combined with automation and user-friendly software have significantly broadened the diagnostic arsenal for the clinical microbiologist. The conventional diagnostic model for clinical microbiology has been labor-intensive and frequently required days to weeks before test results were available. Moreover, due to the complexity and length of such testing, this service was usually directed at the hospitalized patient population. The physical structure of laboratories, staffing patterns, workflow, and turnaround time all have been influenced profoundly by these technical advances. Such changes will undoubtedly continue and lead the field of diagnostic microbiology inevitably to a truly modern discipline. Advanced Techniques in Diagnostic Microbiology provides a comprehensive and up-to-date description of advanced methods that have evolved for the diagnosis of infectious diseases in the routine clinical microbiology laboratory. The book is divided into two sections. The first techniques section covers the principles and characteristics of techniques ranging from rapid antigen testing, to advanced antibody detection, to in vitro nucleic acid amplification techniques, and to nucleic acid microarray and mass spectrometry. Sufficient space is assigned to cover different nucleic acid amplification formats that are currently being used widely in the diagnostic microbiology field. Within each technique, examples are given regarding its application in the diagnostic field. Commercial product information, if available, is introduced with commentary in each chapter. If several test formats are available for a technique, objective comparisons are given to illustrate the contrasts of their advantages and disadvantages. The second applications section provides practical examples of application of these advanced techniques in several "hot" spots in the diagnostic field. A diverse team of authors presents authoritative and comprehensive information on sequence-based bacterial identification, blood and blood product screening, molecular diagnosis of sexually transmitted diseases, advances in mycobacterial diagnosis, novel and rapid emerging microorganism detection and genotyping, and future directions in the diagnostic microbiology field. We hope our readers like this technique-based approach and your feedback is highly appreciated. We want to thank the authors who devoted their time and efforts to produce their chapters. We also thank the staff at Springer Press, especially Melissa Ramondetta, who initiated the whole project. Finally, we greatly appreciate the constant encouragement of our family members through this long effort. Without their unwavering faith and full support, we would never have had the courage to commence this project.

This book covers the essentials of needs analysis from the emerging trainer's perspective by providing just the right amount of support and knowledge without going too deep into the subject. The topics covered include when and how to do a training needs analysis; using informal and formal analysis techniques; goal, task and population analysis; and how to develop and present a training plan for management approval. Each chapter includes appropriate data gathering tools. The Skilled Trainer series provides practical guidance for those who've had some exposure to training and would like to take their career to the next level.

Learn how to expand your interpretation and application of statistical methods used in nursing and health sciences research articles with Statistics for Nursing Research: A Workbook for Evidence-Based Practice, 3rd Edition. Perfect for those seeking to more effectively build an evidence-based practice, this collection of practical exercises guides you in how to critically appraise sampling and measurement techniques, evaluate results, and conduct a power analysis for a study. Written by nursing research and statistics experts Drs. Susan K. Grove and Daisha Cipher, this is the only statistics workbook for nurses to include research examples from both nursing and the broader health sciences literature. This new third edition features new research article excerpts and examples, an enhanced focused on statistical methods

commonly used in DNP projects, new examples from quality improvement projects, new content on paired samples analysis, expanded coverage of calculating descriptive statistics, an online Research Article Library, and more! Whether used in undergraduate, master's, or doctoral education or in clinical practice, this workbook is an indispensable resource for any nursing student or practicing nurse needing to interpret or apply statistical data. Comprehensive coverage and extensive exercise practice address all common techniques of sampling, measurement, and statistical analysis that you are likely to see in nursing and health sciences literature. Literature-based approach uses key excerpts from published studies to reinforce learning through practical application. 36 sampling, measurement, and statistical analysis exercises provide a practical review of both basic and advanced statistical techniques. Study Questions in each chapter help you apply concepts to an actual literature appraisal. Questions to Be Graded sections in each chapter help assess your mastery of key statistical techniques. Consistent format for all chapters enhances learning and enables quick review. NEW! Updated research articles and examples are incorporated throughout to ensure currency and relevance to practice. NEW! Enhanced focus on statistical methods commonly used in DNP projects and expanded coverage on calculating descriptive statistics broadens your exposure to the statistical methods you will encounter in evidence-based practice projects and in the literature. NEW! Examples from quality improvement projects provide a solid foundation for meaningful, high-quality evidence-based practice projects. NEW! Research Article Library on Evolve provides full-text access to key articles used in the book. NEW! Content on paired samples analysis familiarizes you with this type of research analysis. NEW! Many figures added to serveral exercises to help you understand statistical concepts. Student~ interested in world populations and demography inevitably need to know China. As the most populous country of the world, China occupies a unique position in the world population system. How its population is shaped by the intricate interplays among factors such as its political ideology and institutions, economic reality, government policies, sociocultural traditions, and ethnic divergence represents at once a fascinating and challenging arena for investigatIon and analysis. Yet, for much of the 20th century, while population studies have developed into a mature science, precise information and sophisticated analysis about the Chinese population had largely remained either lacking or inaccessible, first because of the absence of systematic databases due to almost uninterrupted strife and wars, and later because the society was closed to the outside observers for about three decades since 1949. Since the end of the Cultural Revolution, things have dramatically changed. China has embarked on an ambitious reform program where modernization became the utmost goal of societal mobilization. China could no longer afford to rely on imprecise census or survey information for population-related studies and policy planning, nor to remaining closed to the outside world. Both the gathering of more precise information and access to such information have dramatically increased in the 1980s. Systematic observations, analyses and reporting about the Chinese population have surfaced in the population literature around the globe.

Providing a much-needed bridge between elementary statistics courses and advanced research methods courses, Understanding Advanced Statistical Methods helps students grasp the fundamental assumptions and machinery behind sophisticated statistical topics, such as logistic regression, maximum likelihood, bootstrapping, nonparametrics, and Bayesian methods. The book teaches students how to properly model, think critically, and design their own studies to avoid common errors. It leads them to think differently not only about math and statistics but also about general research and the scientific method. With a focus on statistical models as producers of data, the book enables students to more easily understand the machinery of advanced statistics. It also downplays the "population" interpretation of statistical models and presents Bayesian methods before frequentist ones. Requiring no prior calculus experience, the text employs a "just-in-time" approach that introduces mathematical topics, including calculus, where needed. Formulas throughout the text are used to explain why calculus and probability are essential in statistical modeling. The authors also intuitively explain the theory and logic behind real data analysis, incorporating a range of application examples from the social, economic, biological, medical, physical, and engineering sciences. Enabling your students to answer the why behind statistical methods, this text teaches them how to successfully draw conclusions when the premises are flawed. It empowers them to use advanced statistical methods with confidence and develop their own statistical recipes. Ancillary materials are available on the book's website.

A Primer of Population Dynamics introduces to the basics of population studies. Author Krishnan Namboodiri utilizes a question-and-answer format that explores topics such as population theories and conceptual schemes, demographic data, mortality, fertility, migration, family and household, food production, and the environment and much more. Questions are accompanied by detailed explanations as well as references for additional information. An extensive index and glossary allow for easy retrieval of information. This introductory textbook is written for students studying demography, population, sociology, and public health.

Andy Field draws on his experience of teaching advanced statistics to extend existing SPSS windows texts to a higher level. He covers ANOVA, MANOVA, logistic regression, comparing means tests and factor analysis.

In recent years, advanced molecular techniques in diagnostic microbiology have been revolutionizing the practice of clinical microbiology in the hospital setting. Molecular diagnostic testing in general and nucleic acid-based amplification methods in particular have been heralded as diagnostic tools for the new millennium. This third edition covers not only the most recent updates and advances, but details newly invented omic techniques, such as next generation sequencing. It is divided into two distinct volumes, with Volume 1 describing the techniques, and Volume 2 addressing their applications in the field. In addition, both volumes focus more so on the clinical relevance of the test results generated by these techniques than previous editions.

This book provides a self-contained presentation of the statistical tools required for evaluating public programs, as advocated by many governments, the World Bank, the European Union, and the Organization for Economic Cooperation and Development. After introducing the methodological framework of program evaluation, the first chapters are devoted to the collection, elementary description and multivariate analysis of data as well as the estimation of welfare changes. The book then successively presents the tools of ex-ante methods (financial analysis, budget planning, cost-benefit, cost-effectiveness and multi-criteria evaluation) and

ex-post methods (benchmarking, experimental and quasi-experimental evaluation). The step-by-step approach and the systematic use of numerical illustrations equip readers to handle the statistics of program evaluation. It not only offers practitioners from public administrations, consultancy firms and nongovernmental organizations the basic tools and advanced techniques used in program assessment, it is also suitable for executive management training, upper undergraduate and graduate courses, as well as for self-study.

There are few books available that provide a good introduction tothe methods and techniques for ecological research. This book willbe invaluable to lecturers teaching field courses and studentsundertaking project work in ecology. Each chapter will focus on an ecological technique. It will havean introductory section that describes the ecological principlesand theory. This will then be followed by example applications.These will focus on three most common habitats where teachers takestudents for fieldwork; the seashore, ponds and lakes, fields andwoodland. Gives specific worked examples from the main ecosystems usedfor undergraduate study - seashore, lakes/ponds, field andwoodland. Only introductory text specifically focused on fieldtechniques. Great 'how-to' guide that will show student exactly how tocarry out each method. Only text to emphasise the principles behind the techniques -taking a methods based approach rather than a taxonomic approach(eg chapters split into population measures, biodiversity measures,species richness measures rather than methods for invertebrates,methods for mammals, methods for birds etc). Greater emphasis on the equipment involved - how to make it,where to buy it. Good references to further reading and advancedtechniques.

By making both causal and process analyses possible, panel data has enjoyed increasing popularity in empirical science. In this compilation, several statistical techniques are presented in the face of a growing need to analyze panel data. Measurement error, missing data, heterogeneous populations and particular requirements for causal interference make the analysis of change more difficult. Readers will find up-to-date approaches covering a wide range of topics. Among these are loglinear and probit models, state space models, and structural equation and multilevel growth curve models of panel data.

Exploration of Cortical Function summarizes recent research efforts aiming at the revelation of cortical population coding and signal processing strategies. Topics include optical detection techniques of population activity in the sub-millimeter range, advanced methods for the statistical analysis of these data, and biologically inspired neuronal modeling techniques for population activities in the frameworks of optimal coding, statistical learning theory, and mean-field recurrent networks. Exploration of Cortical Function is unique in that it covers one complete branch of population-based brain research ranging from techniques for data acquisition over data analysis up to modeling techniques for the quantification of functional principles. The volume covers an area which is of great current interest to researchers working on cerebral cortex. The combination of models and image analysis techniques to examine the activity of large cohorts of neurons is especially intriguing and prone to considerable error and debate. The intended readership is students and researchers from many disciplines, including neuroscience, biology, physics, and computer science, interested in how an interdisciplinary framework from biology advanced statistics and computational neuroscience can be used to gather a quantitative understanding of cortical function. Experimentalists may gain insight into statistical and neuronal modeling techniques, whereas theoreticians will find an introductory treatment of neuroanatomy, neurophysiology, and measurement techniques.

Each topic starts with an explanation of the theoretical background necessary to allow full understanding of the technique and to facilitate future learning of more advanced or new methods and software Explanations are designed to assume as little background in mathematics and statistical theory as possible, except that some knowledge of calculus is necessary for certain parts. SAS commands are provided for applying the methods. (PROC REG, PROC MIXED, and PROC GENMOD) All sections contain real life examples, mostly from epidemiologic research First chapter includes a SAS refresher

This book constitutes the refereed joint proceedings of the First International Workshop on Smart Ultrasound Imaging, SUSI 2019, and the 4th International Workshop on Preterm, Perinatal and Paediatric Image Analysis, PIPPI 2019, held in conjunction with the 22nd International Conference on Medical Imaging and Computer-Assisted Intervention, MICCAI 2019, in Shenzhen, China, in October 2019. The 10 full papers presented at SUSI 2019 and the 10 full papers presented at PIPPI 2019 were carefully reviewed and selected. The SUSI papers cover a wide range of medical applications of B-Mode ultrasound, including cardiac (echocardiography), abdominal (liver), fetal, musculoskeletal, and lung. The PIPPI papers cover the detailed scientific study of volumetric growth, myelination and cortical microstructure, placental structure and function.

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A standard text in a variety of courses, the Techniques Manual, as it is commonly called, covers every aspect of modern wildlife management and provides practical information for applying the hundreds of methods described in its pages. To effectively incorporate the explosion of new information in the wildlife profession, this latest edition is logically organized into a two-volume set: Volume 1 is devoted to research techniques and Volume 2 focuses on management methodologies.

Large surveys are becoming increasingly available for public use, and researchers are often faced with the need to analyse complex survey data to address key scientific issues. For proper analysis it is also important to be aware of the different aspects of the design of complex surveys. Practical Methods for Design and Analysis of Complex Surveys features intermediate and advanced statistical techniques for use in designing and analysing complex surveys. This extensively updated edition features much new material, and detailed practical exercises with links to a Web site, helping instructors and enabling use for distance learning. * Provides a comprehensive introduction to sampling and estimation in descriptive surveys, including design effect statistic and use of auxiliary data. * Includes detailed coverage of complex survey analysis, including design-based ANOVA and logistic regression with GEE estimation. * Contains much new material, including handling of non-sampling errors, and model-assisted estimation for domains. * Features detailed real-li fe case studies, such as multilevel modeling in a multinational educational survey. * Supported by a Web site containing software codes, real data sets, computerized exercises with solutions, and online training materials. Practical Methods for Design and Analysis of Complex Surveys provides a useful practical resource for researchers and practitioners working in the planning, implementation or analysis of complex surveys and opinion polls, including business, educational, health, social, and socio-economic surveys and official statistics. In addition, the book is well suited for use on intermediate and advanced courses in survey sampling.

With chapters written by leading scholars and researchers, the third edition of A Handbook for the Study of Mental Health provides an updated, comprehensive review of the sociology of mental health. The volume presents an overview of the historical, social, and institutional frameworks for understanding mental health and illness. Part I examines the social factors that shape psychiatric

diagnosis and the measurement of mental health and illness, the theories that explain the definition and treatment of mental disorders, and cultural variability in mental health. The section addresses the DSM-5 and its potential influence on diagnosis and research on mental health outcomes. Part II investigates the effects of social context on mental health and illness. Part III focuses on the organization, delivery, and social context of mental health treatment. The chapters in Part III address the likely impact of the Affordable Care Act on mental health care. This volume is a key resource for students, researchers, advocates, and policymakers seeking to understand mental health and mental health delivery systems.

With this book, Siegel, an internationally known demographer and gerontologist, has made a unique contribution to the fledgling fields of health demography, and the demography and epidemiology of aging. The book represents a felicitous union of epidemiology, gerontology, and demography, and appears to be the first and only comprehensive text on this subject now available. Drawing on a wide range of sciences in addition to demography, gerontology, and epidemiology, including medical sociology, biostatistics, public policy, bioethics, and molecular biology, the author treats theoretical and applied issues, links methods and findings, covers the material internationally, nationally, and locally, and while focusing on the elderly, treats the entire life course. The methods, materials, and pespectives of demography and epidemiology are brought to bear on such topics as the prospects for future increases in human longevity, the relative contribution of life style, environment, genetics, and chance in human longevity, the measurement of the share of healthy years in total life expectancy, the role of population growth in the rising costs of health care, and the applications of health demography in serving the health needs of local communities. The separate chapters systematically develop the topics of the sources and quality of health data; mortality, life tables, and the measurement of health status; the interrelationships of health, on the one hand, and mortality, fertility, migration, and age structure, on the other; health conditions in the less developed countries; the concepts and theories of aging and projections of the aged population; and local health applications, public health policy, and bioethical issues in health demography. Given its comprehensiveness, clarity, interdisciplinary scope, and authencity, this book appeals to a wide range of users, from students and teachers of medical sociology, the demography of aging, and public health studies to practitioners in these areas, both as a text in health demography and the demography/epidemiology of aging, and as a reference work in these fields.

Although I feel honored to write a foreword for this important book, it is a task that I approach with some trepidation. The topics covered in the book summarize the current state of the art in technical demography. However, my knowledge and expertise with respect to technical demography are limited to the most fundamental and intermediate-level methods; hence, critical commentary on the contents of this volume is beyond my scope in this fore word. Since I have some understanding of the logic and substantive aspects of the methods rather than the complicated mathematics used in describing them, my comments will necessarily be restricted to the book's general or ganization and content. To date, most texts published on technical demography have been limited to traditional demographic methods: sources and limitations of data, life table construction and applications, standardization techniques, various methods for preparing population estimates and forecasts, etc. However, population specialists have in recent years been developing and successfully applying a variety of sophisticated techniques not covered in the more standard intro ductory texts. In addition, many traditional methods that are unique to the demographic discipline have been improved and extended.

This book presents both theoretical contributions and empirical applications of advanced statistical techniques including geo-additive models that link individual measures with area variables to account for spatial correlation; multilevel models that address the issue of clustering within family and household; multi-process models that account for interdependencies over life-course events and non-random utilization of health services; and flexible parametric alternatives to existing intensity models. These analytical techniques are illustrated mainly through modeling maternal and child health in the African context, using data from demographic and health surveys. In the past, the estimation of levels, trends and differentials in demographic and health outcomes in developing countries was heavily reliant on indirect methods that were devised to suit limited or deficient data. In recent decades, world-wide surveys like the World Fertility Survey and its successor, the Demographic and Health Survey have played an important role in filling the gap in survey data from developing countries. Such modern demographic and health surveys enable investigators to make in-depth analyses that guide policy intervention strategies, and such analyses require the modern and advanced statistical techniques covered in this book. The text is ideally suited for academics, professionals, and decision makers in the social and health sciences, as well as others with an interest in statistical modelling, demographic and health surveys. Scientists and students in applied statistics, epidemiology, medicine, social and behavioural sciences will find it of value.

The nature of demography; Rates and rations; Accuracy and error; The life table; The study of mortality; Measurement of fertility; Growth of population; Migration and the distribution of population; Manpower and working activities.

Score higher in your business statistics course? Easy. Business statistics is a common course for business majors and MBA candidates. It examines common data sets and the proper way to use such information when conducting research and producing informational reports such as profit and loss statements, customer satisfaction surveys, and peer comparisons. Business Statistics For Dummies tracks to a typical business statistics course offered at the undergraduate and graduate levels and provides clear, practical explanations of business statistical ideas, techniques, formulas, and calculations, with lots of examples that shows you how these concepts apply to the world of global business and economics. Shows you how to use statistical data to get an informed and unbiased picture of the market Serves as an excellent supplement to classroom learning Helps you score your highest in your Business Statistics course If you're studying business at the university level or you're a professional looking for a desk reference on this complicated topic, Business Statistics For Dummies has you covered.

Human populations--groups of people living together and sharing a number of biological and social characteristics--differ from one another in many important respects. Human Evolution: Diversity and Adaptation provides a succinct and insightful exploration of the many genetic and environmental conditions that have led to such differences. In describing the specific kinds of diversity--genetic, morphological, social, and disease associations--the book presents case studies that clearly show how such differences interact to produce the variety of human populations that exist around the world. It also stresses the point that human history is to some extent the history of migration, resulting in populations that are not discrete entities but rather a continuous gradation of various physical and cultural attributes. Splendidly written by leading experts, Human Evolution is an excellent compendium that explores the multifaceted field of human evolution.

The theme of the meeting was "Statistical Methods for the Analysis of Large Data-Sets". In recent years there has been increasing interest in this subject; in fact a huge quantity of information is often available but standard statistical techniques are usually not well suited to managing this kind of data. The conference serves as an important meeting point for European researchers working on this topic and a number of European statistical societies participated in the organization of the event. The book includes 45 papers from a selection of the 156 papers accepted for presentation and discussed at the conference on "Advanced Statistical Methods for the Analysis of Large Data-sets." Announcements for the following year included in some vols.

Key research in the world's largest aging population – in China – has fed into this important new work, which aims to answer questions critical to older people worldwide. These include: is the period of disability compressing or expanding with increasing life

expectancy and what factors are associated with these trends in the recent decades? And is it possible to realize morbidity compression with a prolongation of the life span in the future? Essential reading for gerontologists.

Demographic Methods and Concepts makes accessible the most commonly needed techniques for working with population statistics, irrespective of the reader's mathematical background. For the first time in such a text, concepts and practical strategies needed in the interpretation of demographic indices and data are included. Spreadsheet training exercises enable students to acquire the computer skills needed for demographic work. The accompanying free CD-ROM contains innovative, fully integrated learning modules as well as applications facilitating demographic studies.

Clear and concise explanations to understand the learning paradigms. Chapters written by leading world experts.

"This book is an introduction to demography, the scientific study of population. In it I have attempted to summarize what is known about the subject of population and to describe the methods and techniques by which that knowledge has been attained. The volume is therefore concerned with sources of data and methodology fully as much as with known facts about, and relationships among, demographic phenomena. The attempt has been made to treat the subjects in language that can be readily understood by the advanced undergraduate in college or university. The bulk of the data pertains to the United States, since these data are most readily available and because the American student is most concerned with materials about his own country. However, no effort has been spared to assemble comparable information from other portions of the world so that the situation in the United States may be compared with, or contrasted to, that in other great world regions. Naturally the reports of the various censuses taken in this country, from the first to the sixteenth, are the sources of many of the facts. Together these reports form the world's greatest repository of demographic information. Any student of the social sciences would be well paid for taking a semester's work in population even though the course did no more than familiarize him with the reports of the decennial census and the annual publications on vital statistics. The value of the primary materials gathered by the Bureau of the Census has been greatly enhanced by the excellent analytical efforts on the part of demographers during the last quarter of a century. It can rightfully be said that population study is among the most rapidly advancing parts of social science"--Preface. (PsycINFO Database Record (c) 2007 APA, all rights reserved).

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