Cancer Mortality and Morbidity Patterns in the U.S. Population: An Interdisciplinary Approach (Statistics for Biology and Health)

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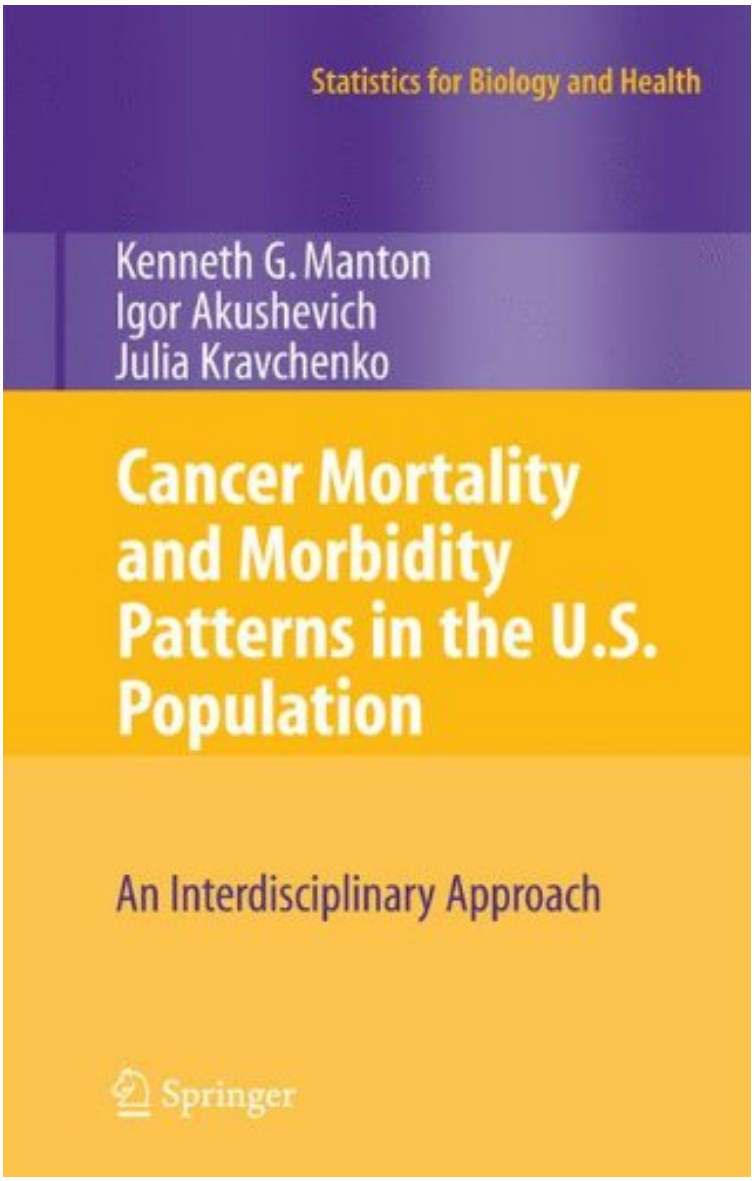

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K.G. Manton, Igor Akushevich, Julia Kravchenko : Cancer Mortality and Morbidity Patterns in the U.S. Population: An Interdisciplinary Approach (Statistics for Biology and Health) before purchasing it in order to gage whether or not it would be worth my time, and all praised Cancer Mortality and Morbidity Patterns in the U.S.

Population: An Interdisciplinary Approach (Statistics for Biology and Health):

3 of 3 people found the following review helpful. Interdisciplinary Approach to cancer mortality patternsBy Michael R. ChernickThe authors of this text are a demographer a mathematical physicist and an internal diseases MD. none are professional statisticians but they all have a good understand of mathematics and survival analysis and more importantly each has knowledge about cancer from different perspectives. The theme of the book is that conquering cancer requires an interdisciplinary approach because cancers are complicated diseases and the understanding requires stochastic models and real data. Data on cancer come from many sources. There is the laboratory experiments on cells and animals (often mice), the genetic aspects, the epidemiologic viewpoint and more. The authors know that breakthroughs are occurring on all levels but what has held things back in the compartmentalization of study disciplines and their unique jargon. This creates poor communication and makes it difficult to share results and synthesize results. But a multidisciplinary approach where everyone sheds their jargon and works together to understand what the other person is doing is the efficient way top attain success. I believe this has been proven over and over again in times of war when efficiency becomes a necessity. The Manhattan project with the scientists from various disciplines coming together at Los Alamos under the leadership of J.Robert Oppenheimer is the reason we developed the bomb ahead of Germany and Russia and in time to end the war with Japan.This book is a compendium of hitory and methods in the fight against cancer and it provides in one source the detailed research from multiple disciplines To model and understand the various types of cancers and their similarities and differences. This is particularly exemplified in chapter 7. Each chapter has an extensive list of references. As the publisher states this book is the first of its kind to describe the interdisciplinary approach in biomedical studies. I agree with that and hope that there will be more to come like this.

The purpose of this book is to examine the etiology of cancer in large human populations using mathematical models developed from an inter-disciplinary perspective of the population epidemiological, biodemographic, genetic and physiological basis of the mechanisms of cancer initiation and progression. In addition an investigation of how the basic mechanism of tumor initiation relates to general processes of senescence and to other major chronic diseases (e.g., heart disease and stroke) will be conducted.

The description and modeling of cancer mortality and morbidity deserve this important book. Several facets of the epidemiology of cancer are explored and documented. After a general assessment of the presence of cancer in the U.S. population the heart of the book focuses on the methods for analyzing cancer, notably in age, time, race, and space. There is a useful glossary of medical and statistical terms. This book is essential not only to modelers of cancer mortality and morbidity, but it also serves as a good entry to anyone interested in classical tools of demographic epidemiology. (Mathematical Population Studies, 17:65-66, 2010)The title is no lie: this is an interdisciplinary book from cover to cover. Its aim is to provide a broad education to a wide-ranging audienceon some of the tools used in cancer studies and some of those studies results. The authors have different areas of expertise and have worked to make sure that the book continually reflects all relevant disciplines. There are chapters that are primarily about the tools (mathematical and statistical models, both on a cellular and on a population level) and those that are primarily about the results (e.g., known risk factors, observed trends, and prevention strategies), but both types of chapters contain something from the other areas. Furthermore, these chapter s are intermingled, rather that segregated into two parts, emphasizing to me that the tools and the results are both just parts of the whole. Chapters where models are described do not shy away from using equations, including vector notation, to present the models, but the mathematical details of their derivation and analysis are appropriately omitted. Numerous plots, figures, and tables show results of analyses, and interpretations are given that are medical in nature but again not excessively technical. A 40-page glossary at the end defines both mathematical and medical terms in a relatively plain language. I believe that this book would be useful as an introduction to cancer studies for many people with expertise in one but not all relevant areas. It also serves as a summary of what is known about cancer so far (Biometrics, Summer 2009, 65, 1001)From the Back CoverThis book is the first of its kind to describe interdisciplinary approaches to biomedical studies. It views analyses of biomedical data sets, such as cancer morbidity and mortality, from a different and richer than classic epidemiological perspective by using mathematical modeling methods, including ones providing insights into probable mechanisms of human carcinogenesis. The book will be useful for many specialists, e.g., epidemiologists, oncologists, medical researchers, biologists, public health and environmental specialists, and specialists in mathematical modeling. Medical, biology and math undergraduates and postgraduates, as well as basic and applied researchers attempting to extend their studies in collaboration with other specialists in interdisciplinary teams, will find practical information here. Biomedical specialists could be interested in historical aspects of cancer treatment and prevention, mechanisms of carcinogenesis, cancer risk factors, cancer mortality and morbidity trends in the U.S. over a more than 50-year period, as well as specific features of cancer histotypes, and recent approaches to cancer prevention. Readers interested in analytic aspects can find information on existing and innovative approaches

used in interdisciplinary studies such as stochastic process models, microsimulation of interventions, and empirical Bayes approaches. This book was written by authors with different backgrounds who teamed in an interdisciplinary group. Kenneth G. Manton, Ph.D. (Demography) is Research Professor of Demographic Studies at Duke University (Durham, NC). He was Head of the W.H.O. Collaborating Center for Research and Training in the Methods of Assessing Risk and Forecasting Health Status Trends. He has authored more than 450 peer-reviewed publications, including several books. Igor Akushevich, Ph.D. (Theoretical and Mathematical Physics), Center for Population Health and Aging at Duke University, authored more than 70 peer-reviewed publications. Julia Kravchenko, MD, Ph.D. (Internal Diseases, Biochemistry), Duke Comprehensive Cancer Center in the School of Medicine. She is author of more than 30 peer-reviewed publications.