

Chava Frankfort-Nachmias  
Anna Leon-Guerrero

# SOCIAL STATISTICS *for a* DIVERSE SOCIETY

5th Edition

Table 1. Areas Under the Standard Normal Curve

Area Between Mean and Z		Area Beyond Z		Area Between Mean and Z		Area Beyond Z	
Z	Area	Z	Area	Z	Area	Z	Area
0.00	0.0000	0.00	0.5000	0.01	0.0040	0.01	0.4960
0.01	0.0040	0.01	0.4960	0.02	0.0080	0.02	0.4920
0.02	0.0080	0.02	0.4920	0.03	0.0120	0.03	0.4880
0.03	0.0120	0.03	0.4880	0.04	0.0160	0.04	0.4840
0.04	0.0160	0.04	0.4840	0.05	0.0200	0.05	0.4800
0.05	0.0200	0.05	0.4800	0.06	0.0240	0.06	0.4760
0.06	0.0240	0.06	0.4760	0.07	0.0280	0.07	0.4720
0.07	0.0280	0.07	0.4720	0.08	0.0320	0.08	0.4680
0.08	0.0320	0.08	0.4680	0.09	0.0360	0.09	0.4640
0.09	0.0360	0.09	0.4640	0.10	0.0400	0.10	0.4600



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*5th Edition*



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STATISTICS *for a*  
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## ABOUT THE AUTHORS

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# PREFACE

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**Y**ou may be reading this introduction on the first day or sometime during the first week of your statistics class. You probably have some questions about statistics and concerns about what your course will be like. Math, formulas, calculations? Yes, those will be part of your learning experience. However, there is more.

Throughout our text, we emphasize the relevance of statistics in our daily and professional lives. In fact, statistics is such a part of our lives that its importance and uses are often overlooked. How Americans feel about a variety of political and social topics—safety in schools, the price of gas, gun control, abortion, affirmative action, or our president—are measured by surveys and polls and reported daily by the news media. The latest from a health care study on women was just reported on a morning talk show. And that outfit you just purchased—it didn't go unnoticed. The study of consumer trends, specifically focusing on teens and young adults, helps determine commercial programming, product advertising and placement, and ultimately, consumer spending.

Statistics is not just a part of our lives in the form of news bits or information. And it isn't just numbers either. Throughout this book, we encourage you to move beyond being just a consumer of statistics and begin to recognize and use the many ways that statistics can increase our understanding of our world. As social scientists, we know that statistics can be a valuable set of tools to help us analyze and understand the differences in our American society and the world. We use statistics to track demographic trends, to assess differences among groups in society, and to make an impact on social policy and social change. Statistics can help us gain insight into real-life problems that affect our lives.

## TEACHING AND LEARNING GOALS

The following three teaching and learning goals continue to be the guiding principles of our book, as they were in the fourth edition.

The first goal is to introduce you to social statistics and demonstrate its value. Although most of you will not use statistics in your own student research, you will be expected to read and interpret statistical information presented by others in professional and scholarly publications, in the workplace, and in the popular media. This book will help you understand the



concepts behind the statistics so that you will be able to assess the circumstances in which certain statistics should and should not be used.

Our second goal is to demonstrate that substance and statistical techniques are truly related in social science research. A special quality of this book is its integration of statistical techniques with substantive issues of particular relevance in the social sciences. Your learning will not be limited to statistical calculations and formulas. Rather, you will become proficient in statistical techniques while learning about social differences and inequality through numerous substantive examples and real-world data applications. Because the world we live in is characterized by a growing diversity—where personal and social realities are increasingly shaped by race, class, gender, and other categories of experience—this book teaches you basic statistics while incorporating social science research related to the dynamic interplay of social variables.

Many of you may lack substantial math background, and some of you may suffer from the “math anxiety syndrome.” This anxiety often leads to a less-than-optimal learning environment, with students trying to memorize every detail of a statistical procedure rather than attempting to understand the general concept involved. Hence, our third goal is to address math anxiety by using straightforward prose to explain statistical concepts and by emphasizing intuition, logic, and common sense over rote memorization and derivation of formulas.

## DISTINCTIVE AND UPDATED FEATURES OF OUR BOOK

The three learning goals we emphasize are accomplished through a variety of specific and distinctive features throughout this book.

*A Close Link Between the Practice of Statistics, Important Social Issues, and Real-World Examples.* A special quality of this book is its integration of statistical technique with pressing social issues of particular concern to society and social science. We emphasize how the conduct of social science is the constant interplay between social concerns and methods of inquiry. In addition, the examples throughout the book—mostly taken from news stories, government reports, scholarly research, the National Opinion Research Center General Social Survey, and the Monitoring the Future Survey—are formulated to emphasize to students like you that we live in a world in which statistical arguments are common. Statistical concepts and procedures are illustrated with real data and research, providing a clear sense of how questions about important social issues can be studied with various statistical techniques.

*A Focus on Diversity: U.S. and International.* A strong emphasis on race, class, and gender as central substantive concepts is mindful of a trend in the social sciences toward integrating issues of diversity in the curriculum. This focus on the richness of social differences within our society and our global neighbors is manifested in the application of statistical tools to examine how race, class, gender, and other categories of experience shape our social world and explain social behavior. Data examples from the International Social Survey Programme data set help expand our statistical focus beyond the United States to other nations.

*Reading the Research Literature.* In your student career and in the workplace, you may be expected to read and interpret statistical information presented by others in professional and scholarly publications. The statistical analyses presented in these publications are a good deal more complex than most class and textbook presentations. To guide you in reading and interpreting research reports written by social scientists, most chapters include a section presenting excerpts of published research reports using the statistical concepts under discussion.

*Integration and Review Chapters.* Two special review chapters are included in your student CD. The first is a review of descriptive statistical methods (Chapters 2–5, 10, 12, and 13), and the second reviews inferential statistics (Chapters 6–9, 11, 12, and 14). These review chapters provide an overview of the interconnectedness of the statistical concepts in this book and help test your abilities to cumulatively apply the knowledge from previous chapters. Both chapters include flowcharts that summarize the systematic approach used in the selection of statistical techniques as well as exercises that require the use of several different procedures. As in our text chapters, each Web chapter concludes with an SPSS (Statistical Package for the Social Sciences) demonstration, SPSS exercises, and end-of-chapter exercises.

*Tools to Promote Effective Study.* Each chapter concludes with a list of main points and key terms discussed in that chapter. Boxed definitions of the key terms also appear in the body of the chapter, as do learning checks keyed to the most important points. Key terms are also clearly defined and explained in the index/glossary, another special feature in our book. Answers to all the odd-numbered problems in the text are included in the back of the book. Complete step-by-step solutions are in the manual for instructors, available from the publisher on adoption of the text.

*Emphasis on Computing.* SPSS for Windows is used throughout the book, although the use of computers is not required to learn from the text. Real data are used to motivate and make concrete the coverage of statistical topics. These data, from the General Social Survey (GSS) and the Monitoring the Future (MTF) survey, are included in a disk packaged with every copy of the text. At the end of each chapter, we feature a demonstration of a related SPSS procedure, along with a set of exercises.

## ▣ HIGHLIGHTS OF THE FIFTH EDITION

We have made a number of important changes to this book in response to the valuable comments that we have received from the many instructors adopting the fourth edition and from other interested instructors (and their students).

- *Chapter reorganization:* We have reorganized the chapters, focusing first on descriptive data analysis from Chapters 2 to 5, moving into the basis of inferential statistics—normal distribution, sampling, and estimation in Chapters 6 to 8, followed by inferential analyses in Chapters 9 to 14.
- *Real-world examples and exercises:* A hallmark of our first four editions was the extensive use of real data from a variety of sources for chapter illustrations and exercises. Throughout the fifth edition, we have updated the majority of exercises and examples based on GSS, MTF Survey, or U.S. Census data.



- *SPSS version 16.0*: Packaged with this text, on an optional basis, is SPSS Student version 16.0. SPSS demonstrations and exercises have been updated, using version 16.0 format. Appendix E, How to Use a Statistical Package, has also been updated to highlight 16.0 features. Please telephone the publisher at (805) 499-4224 or access their Web site at [www.pineforge.com](http://www.pineforge.com) to learn how to order the book packaged with the student version of SPSS version 16.0.
- *GSS 2006 and MTF Survey 2006*: As a companion to the fifth edition's SPSS demonstrations and exercises, we have created four data sets. Those of you with the student version of SPSS 16.0 will work with two separate GSS files: GSS Module A and GSS Module B. The GSS06PFP.SAV contains an expanded selection of variables and cases from the 2006 GSS. The MTF2006.SAV contains a selection of variables and cases from the 2006 MTF survey, conducted by the University of Michigan Survey Research Center. The MTF is a survey of 12th-grade students, exploring drug use and criminal behavior. SPSS exercises at the end of each chapter use certain variables from all data modules. There is ample opportunity for instructors to develop their own SPSS exercises using these data.
- *Supplemental tools on important topics*: The fifth edition's discussion of inferential statistics remains focused on  $Z$ ,  $t$ , and  $\chi^2$ .

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I am grateful to my students at the University of Wisconsin–Milwaukee, who taught me that even the most complex statistical ideas can be simplified. The ideas presented in this book are the products of many years of classroom testing. I thank my students for their patience and contributions.

Finally, I thank my partner Marlene Stern, and my daughters, Anat and Talia, for their love, support, and faith in me.

Anna Leon-Guerrero expresses her thanks to the following: I wish to thank my statistics teaching assistants and students. My passion for and understanding of teaching statistics grow with each semester and class experience. I am grateful for the teaching and learning opportunities that we have shared.

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