

Basic Statistics for Business and Economics

Second Edition

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To Jane and Anita

PREFACE TO THE STUDENT

As the name implies, the major objective of this book is to assist you in developing an understanding of the skills needed for future success in marketing, accounting, management, finance, and other fields of business administration and economics. *Basic Statistics for Business and Economics* also provides an excellent background for more advanced courses in statistics.

We have designed this book to assist you in approaching this basic course without the anxiety often associated with statistics. To accomplish this we have developed a large number of very effective learning aids. We list and comment on some of these below.

LEARNING AIDS

Goals Each chapter opens with a set of goals. They state what you should be able to do after completing the chapter. When you have finished the chapter, make sure you have accomplished these objectives.

Example and solution After a brief discussion of a statistical technique there is a simple example followed by the detailed solution. These examples/solutions are continued throughout the chapter.

Self-review problems A number of self-review problems are interspersed through each chapter. They are designed to give you an opportunity to work problems similar to the preceding examples. The objective is to reinforce an understanding of the material just covered. The answer and method of solution are given at the end of the chapter. We urge you to do these review problems because they continue to give learning reinforcement as you progress through the chapter.

Exercises Throughout a chapter, and at the end of a chapter, are a large number of exercises that may be assigned by your instructor. The answers to the odd-numbered exercises are given at the end of the book. Again, we urge you to work these exercises to give you practice in the various statistical computations.

Definitions and formulas Definitions of new terms and formulas used for the first time are boxed and highlighted in color for emphasis. Refer to them when appropriate.

Perspectives boxes These boxes show real-world applications of statistical topics in articles from *USA Today*, *Business Week*, *Sports Illustrated*, etc. They also include important historical events in the subject.

Formula card A card containing the key formulas for each chapter in a handy, easy-to-find place.

Margin notes Concise notes in the margin aimed at reemphasizing an important concept.

Chapter outline This learning aid gives you a chance to summarize the material in the chapter.

Computer data exercises The last few exercises in most chapters are based on three large data sets found at the end of the book. One involves statistics from the 1995 Major League Baseball season. The other concerns the circulation and sales of magazines such as *Ebony*, *Good Housekeeping*, and *National Geographic*. We urge you to solve these exercises using MINITAB or some other software.

The other set includes information relating to The Spaghetti Warehouse cases found at the end of most chapters.

STUDY GUIDE

There is a Study Guide available for the text, written by Walter Lange. Each chapter includes the chapter goals, an introduction, a discussion of the statistical tools, a glossary, and chapter problems with solutions done step by step with explanations. Following each chapter problem is an exercise to do, with the answer given at the end of the guide. If it is not available in your bookstore, ask the bookstore manager about ordering it.

Doug Lind
Bob Mason

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*Basic Statistics for
Business and Economics*

CONTENTS IN BRIEF

CHAPTER 1

Introduction to Basic Statistics 1

CHAPTER 2

Summarizing Data: Frequency Distributions and Graphic Presentation 23

CHAPTER 3

Describing Data: Measures of Central Tendency and Dispersion 61

CHAPTER 4

A Survey of Probability Concepts 117

CHAPTER 5

Discrete Probability Distributions 151

CHAPTER 6

The Normal Probability Distribution 183

CHAPTER 7

Sampling Methods and Sampling Distributions 211

CHAPTER 8

Tests of Hypotheses: Large Samples 257

CHAPTER 9

Tests of Hypotheses: Small Samples 291

CHAPTER 10

Analysis of Variance Tests 319

CHAPTER 11

Correlation and Regression Analysis 343

CHAPTER 12

Multiple Regression and Correlation 381

CHAPTER 13

Nonparametric Methods: Chi-Square Applications 415

CHAPTER 14

Statistical Quality Control 445

CHAPTER 15

Index Numbers 473

CHAPTER 16

Time Series and Forecasting 503

APPENDIXES 537

ANSWERS: ODD-NUMBERED
CHAPTER EXERCISES 561

INDEX 593

CONTENTS

CHAPTER 1

Introduction to Basic Statistics 1

- Goals 1
- What Is Statistics? 2
- A Statistic and Statistics 3
- Who Uses Statistics? 3
- Misuses of Statistics 5
- Types of Statistics 6
 - Descriptive Statistics 6*
 - Inferential Statistics 7*
- Use of Questionnaires 9
- Computer Applications 10
- Why Do We Need a Sample? 11
- Types of Variables 12
- Scales of Measurement 13
 - Nominal Level 14*
 - Ordinal Level 15*
 - Interval Level 16*
 - Ratio Level 17*
- Learning Aids 18
- Chapter Outline 19
- Chapter Exercises 20
- The Spaghetti Warehouse Case 21
- Chapter 1 Answers 22

CHAPTER 2

Summarizing Data: Frequency Distributions and Graphic Presentation 23

- Goals 23
- Introduction 24
- Constructing a Frequency Distribution 24
 - Class Intervals and Midpoints 26*
 - Suggestions on Constructing a Frequency Distribution 27*
 - Relative Frequency Distribution 30*
- Exercises 31
- Stem-and-Leaf Displays 31

- Exercises 35
- Portraying a Frequency Distribution Graphically 36
 - Histogram 36*
 - Frequency Polygon 38*
- Exercises 40
 - Less-than Cumulative Frequency Polygon 42*
- Exercises 44
- Graphic Representation of Data 46
 - Simple Line Charts and Simple Bar Charts 46*
 - Pie Charts 49*
- Exercises 50
- Chapter Outline 51
- Chapter Exercises 52
- Working with Data 55
- Computer Data Exercises 56
- The Spaghetti Warehouse Case 57
- Chapter 2 Answers 58

CHAPTER 3

Describing Data—Measures of Central Tendency and Dispersion 61

- Goals 61
- Introduction 62
- What Is a Measure of Central Tendency? 62
- Arithmetic Mean 63
- The Population Mean 64
- The Properties of the Arithmetic Mean 65
- Exercises 66
- Weighted Mean 66
- Exercises 67
- The Median 68
 - Properties of the Median 70*
- The Mode 71
- A Computer Example 72
- Exercises 72
- The Geometric Mean 73
- Exercises 75

The Mean, Median, and Mode of Grouped Data	76
<i>The Arithmetic Mean</i>	76
Exercises	78
<i>The Median</i>	78
<i>The Mode</i>	81
Exercises	82
Selecting an Average for Data in a Frequency Distribution	82
Why Study Dispersion?	84
Measures of Dispersion—Ungrouped Data	85
<i>Range</i>	85
<i>Mean Deviation</i>	86
Exercises	87
<i>Variance and Standard Deviation</i>	88
Exercises	90
Exercises	92
Measures of Dispersion for Data Grouped into a Frequency Distribution	93
<i>Range</i>	93
<i>Standard Deviation</i>	93
Exercises	96
Interpretation and Uses of the Standard Deviation	97
Box Plots	99
Exercises	101
Relative Dispersion	102
Exercises	103
Skewness	103
Exercises	104
A Computer Spreadsheet Application	104
Chapter Outline	105
Chapter Exercises	108
Working with Data	110
Computer Data Exercises	112
The Spaghetti Warehouse Case	112
Chapter 3 Answers	113

CHAPTER 4

A Survey of Probability Concepts 117

Goals	117
Introduction	118
Definition of Probability	118
Exercises	120
Approaches to Probability	121
<i>Classical Probability</i>	121

<i>Relative Frequency Probability</i>	123
<i>Subjective Probability</i>	124
Exercises	125
Some Basic Rules of Probability	125
<i>Rules of Addition</i>	125
Exercises	128
Exercises	130
<i>Rules of Multiplication</i>	131
Tree Diagrams	134
Exercises	136
Exercises	138
Bayes' Theorem	138
Exercises	143
Chapter Outline	143
Chapter Exercises	144
Working with Data	147
Computer Data Exercises	148
The Spaghetti Warehouse Case	149
Chapter 4 Answers	150

CHAPTER 5

Discrete Probability Distributions 151

Goals	151
Introduction	152
What Is a Random Variable?	152
<i>Discrete Random Variable</i>	152
<i>Continuous Random Variable</i>	153
Discrete Probability Distributions	153
The Mean, Variance, and Standard Deviation of a Discrete Probability Distribution	154
<i>Mean</i>	155
<i>Variance and Standard Deviation</i>	155
Exercises	157
Binomial Probability Distribution	158
<i>Constructing a Binomial Probability Distribution</i>	159
Exercises	161
<i>Using Binomial Probability Tables</i>	161
<i>Limitation of the Binomial Table</i>	163
<i>The Mean and Variance of a Binomial Probability Distribution</i>	165
Exercises	166
Cumulative Probability Distributions	166
Exercises	167
Hypergeometric Distribution	168
Exercises	171

The Poisson Probability Distribution	171
Exercises	174
Chapter Outline	175
Chapter Exercises	176
Working with Data	179
The Spaghetti Warehouse Case	180
Chapter 5 Answers	181

CHAPTER 6

The Normal Probability Distribution 183

Goals	183
Introduction	184
The Normal Probability Distribution	184
Characteristics of a Normal Probability Distribution	185
The Family of Normal Probability Distributions	185
The Standard Normal Probability Distribution	186
<i>Applications of the Standard Normal Distribution</i>	188
<i>Areas under the Normal Curve</i>	189
Exercises	191
<i>What Is the Area between μ and X?</i>	191
Exercises	193
<i>How Are the Areas to the Right and Left of the Mean Combined?</i>	193
<i>How Is the Area above and Below a Particular Value Combined?</i>	194
<i>How Is the Value of X Found, Given a Percent?</i>	196
<i>How Are Two or More Observations on Different Scales or in Different Units Compared?</i>	197
Exercises	199
The Normal Approximation to the Binomial	199
<i>Continuity Correction Factor</i>	200
Exercises	203
Chapter Outline	203
Chapter Exercises	204
Working with Data	206
Computer Data Exercises	206
The Spaghetti Warehouse Case	207
Chapter 6 Answers	208

CHAPTER 7

Sampling Methods and Sampling Distributions 211

Goals	211
Introduction	212

Why Sample the Population?	213
What Is a Probability Sample?	214
Methods of Probability Sampling	215
<i>Simple Random Sampling</i>	215
<i>Systematic Random Sampling</i>	217
Exercises	218
<i>Stratified Random Sampling</i>	219
Exercises	220
<i>Cluster Sampling</i>	220
Sampling Error	221
Sampling Distribution of the Means	221
Exercises	225
The Central Limit Theorem	226
<i>Computer Simulation 1</i>	227
Point Estimates and Interval Estimates	230
<i>Point Estimate</i>	230
<i>Interval Estimate</i>	231
Standard Error of the Mean	232
Constructing the 95 Percent and the 99 Percent Confidence Intervals	234
<i>Computer Simulation 2</i>	235
Exercises	237
Confidence Interval for a Population Proportion	238
Exercises	239
Finite-Population Correction Factor	240
Exercises	242
Selecting a Sample Size	242
<i>Degree of Confidence</i>	242
<i>Maximum Error Allowed</i>	243
<i>Variation in the Population</i>	244
Exercises	245
Sample Size for Proportions	246
Exercises	247
Chapter Outline	248
Chapter Exercises	249
Working with Data	253
Computer Data Exercises	254
The Spaghetti Warehouse Case	254
Chapter 7 Answers	255

CHAPTER 8

Tests of Hypotheses: Large Samples 257

Goals	257
Introduction	258

What Is a Hypothesis?	258
What Is Hypothesis Testing	258
Five-Step Procedure for Testing a Hypothesis	259
Step 1: Identify the Null Hypothesis and the Alternative Hypothesis	259
Step 2: Determine the Level of Significance	260
Step 3: Find the Test Statistic	262
Step 4: Determine the Decision Rule	262
Step 5: Make a Decision	263
One-Tailed and Two-Tailed Tests of Significance	263
Testing for the Population Mean: Large Sample, Population Standard Deviation Known	265
A One-Tailed Test	267
p -values in Hypothesis Testing	268
Exercises	269
Testing for the Population Mean: Large Sample, Population Standard Deviation Unknown	270
Exercises	271
Hypothesis Testing: Two Population Means	272
Exercises	274
A Test Involving One Population Proportion	275
Exercises	279
A Test Involving the Difference between Two Population Proportions	279
Exercises	283
Chapter Outline	284
Chapter Exercises	286
Working with Data	288
Computer Data Exercises	289
The Spaghetti Warehouse Case	289
Chapter 8 Answers	290

CHAPTER 9

Tests of Hypotheses: Small Samples 291

Goals	291
Introduction	292
Characteristics of Student's t Distribution	292
A Test for the Population Mean	293
Finding a p -Value Using the t Distribution	296
Exercises	297
A Computer Solution	299
Exercises	301
Comparing Two Population Means	302
Exercises	306
Hypothesis Testing Involving Paired Observations	307

Exercises	311
Chapter Outline	312
Chapter Exercises	313
Working with Data	315
Computer Data Exercises	316
The Spaghetti Warehouse Case	316
Chapter 9 Answers	317

CHAPTER 10

Analysis of Variance Tests 319

Goals	319
Introduction	320
What is the F Distribution and What Is Its Use?	320
Comparing Two Population Variances	321
Validating Assumptions	321
Exercises	323
ANOVA: Underlying Assumptions	324
The ANOVA Test	326
Inferences about Treatment Means	331
Exercises	333
Chapter Outline	335
Chapter Exercises	336
Working with Data	338
Computer Data Exercise	340
The Spaghetti Warehouse Case	340
Chapter 10 Answers	341

CHAPTER 11

Correlation and Regression Analysis 343

Goals	343
Introduction	344
What Is Simple Correlation Analysis?	344
The Coefficient of Correlation	346
The Coefficient of Determination	349
A Word of Caution	349
Exercises	350
Testing the Significance of the Correlation Coefficient	351
Small Samples	351
An Application Using the MINITAB System	352
Exercises	354
Regression Analysis	355
Least Squares Principle	356
Drawing the Line of Regression	358

Exercises	360
The Standard Error of Estimate	361
Assumptions Underlying Linear Regression	363
Exercises	364
Confidence Intervals and Prediction Intervals	365
Exercises	368
The Relationship among the Coefficient of Correlation, the Coefficient of Determination, and the Standard Error of Estimate	369
Chapter Outline	372
Chapter Exercises	373
Working with Data	376
Computer Data Exercises	379
The Spaghetti Warehouse Case	379
Chapter 11 Answers	380

CHAPTER 12

Multiple Regression and Correlation 381

Goals	381
Introduction	382
Multiple Regression Analysis	382
Exercises	386
Multiple Standard Error of Estimate	387
<i>Assumptions about Multiple Regression and Correlation</i>	388
The ANOVA Table	389
<i>A Case Study</i>	391
Global Test: Testing Whether or Not the Multiple Regression Model Is Valid	393
<i>Evaluating Individual Regression Coefficients</i>	395
Qualitative Variables in Regression	397
Stepwise Regression	400
Chapter Outline	401
Chapter Exercises	402
Working with Data	410
Computer Data Exercises	412
The Spaghetti Warehouse Case	412
Chapter 12 Answers	413

CHAPTER 13

Nonparametric Methods: Chi-Square Applications 415

Goals	415
Introduction	416

Chi-Square Goodness-of-Fit Test: Equal Expected Frequencies	416
Goodness-of-Fit Test: Unequal Expected Frequencies	421
Limitations of Chi-Square	424
Exercises	426
Using the Goodness-of-Fit Test to Test for Normality	427
Exercises	431
Contingency Table Analysis	431
Exercises	435
Chapter Outline	436
Chapter Exercises	436
Working with Data	440
Computer Data Exercise	441
The Spaghetti Warehouse Case	441
Chapter 13 Answers	442

CHAPTER 14

Statistical Quality Control 445

Goals	445
Introduction	446
Causes of Variation	449
Purpose and Types of Quality-Control Charts	449
<i>Charts for Variables</i>	450
<i>Some In-Control and Out-of-Control Situations</i>	455
Exercises	457
<i>Charts for Attributes</i>	457
Exercises	460
Exercises	463
Acceptance Sampling	463
Exercises	466
Chapter Outline	467
Chapter Exercises	468
Working with Data	471
The Spaghetti Warehouse Case	471
Chapter 14 Answers	472

CHAPTER 15

Index Numbers 473

Goals	473
Introduction	474
Simple Index Numbers	476
Why Convert Data to Indexes?	478
Types of Index Numbers	479

Price Indexes	479
Special-Purpose Indexes	479
Construction of Index Numbers	479
Weighted Indexes	482
Exercises	483
Value Index	486
Exercises	487
Special-Purpose Index	488
Exercises	489
Consumer Price Index	490
Special Uses of the Consumer Price Index	491
Exercises	494
Chapter Outline	495
Chapter Exercises	497
Working with Data	500
The Spaghetti Warehouse Case	501
Chapter 15 Answers	502

CHAPTER 16

Time Series and Forecasting 503

Goals	503
Introduction	504
Components of a Time Series	504
Secular Trend	504
Cyclical Variation	506
Seasonal Variation	506
Irregular Variation	507
Linear Trend	507
Least Squares Method	509
Plotting the Straight Line	510
Estimation	510
Exercises	512
Nonlinear Trends	513

Exercises	516
Seasonal Variation	517
Determining a Seasonal Index	517
Exercises	523
Deseasonalizing Data	523
Exercises	528
Chapter Outline	528
Chapter Exercises	529
Working with Data	533
Computer Data Exercise	534
The Spaghetti Warehouse Case	534
Chapter 16 Answers	535

APPENDIXES

Appendix A Binomial Probability Distribution	538
Appendix B Factors for Control Charts	546
Appendix C Poisson Distribution: Probability of Exactly X Occurrences	547
Appendix D Areas under the Normal Curve	548
Appendix E Table of Random Numbers	549
Appendix F Student t Distribution	550
Appendix G Critical Values of the F Distribution	551
Appendix H Critical Values of Chi-Square	553
Appendix I The Spaghetti Warehouse Case	554
Appendix J Data Set 1: 1995 Major League Baseball	556
Appendix K Data Set 2: Magazine Circulation	558

ANSWERS: ODD-NUMBERED CHAPTER EXERCISES 561

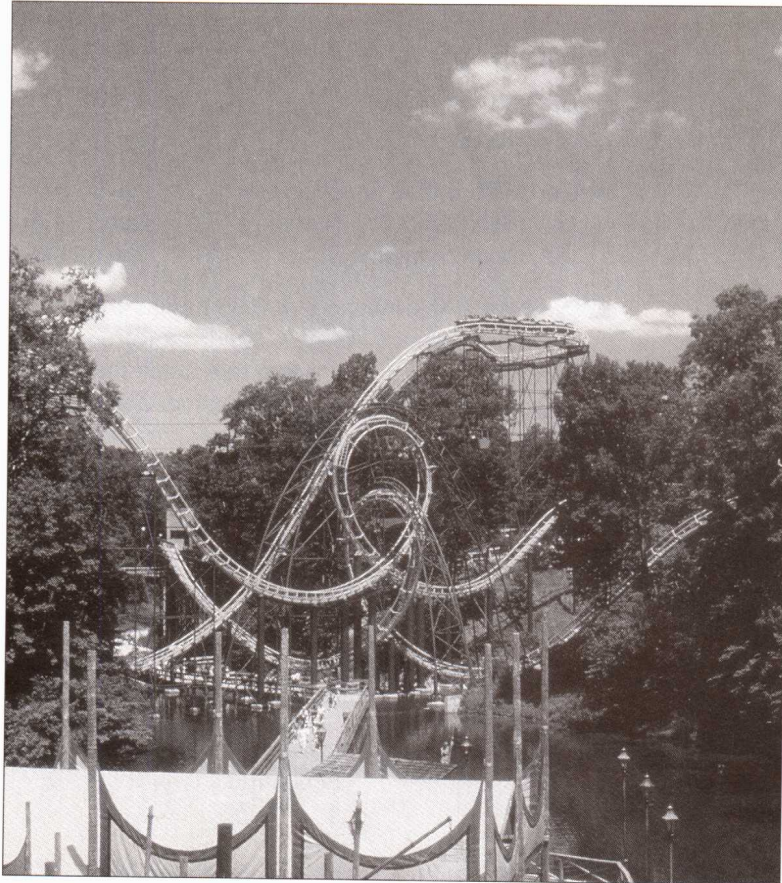
INDEX 593

Introduction to Basic Statistics

GOALS

When you have completed this chapter you will be able to:

- 1 Define *statistics*.
- 2 Cite uses of statistics in business and other areas.
- 3 Explain what *descriptive statistics* and *inferential statistics* mean.
- 4 Understand quantitative and qualitative variables.
- 5 Distinguish between nominal, ordinal, interval, and ratio levels of measurement.
- 6 Understand the terms *mutually exclusive* and *exhaustive*.



How would a marketing manager proceed in making recommendations about the location of an amusement park? (See Goal 2 and Exercise 5)

WHAT IS STATISTICS?

Baseball fans follow closely batting averages, standings of American and National League teams, and the number of consecutive games Cal Ripken of the Baltimore Orioles played before he overtook Lou Gehrig's record in September 1995 (2,130 consecutive games). Stock market analysts watch financial statistics such as the Dow Jones Average and the NASDAQ average. You are concerned about your grade point average (hopefully 4.0). Economists closely scan figures such as the unemployment rate, the Consumer Price Index, the national debt, and so on.

Consumers and others are interested in assorted statistics, such as annual income. *Fortune* publishes information on the richest Americans.

Barbara Walters

- ABC anchorwoman
- \$10,000,000
- Earns more than Tom Brokaw (\$2 million) and Dan Rather (\$3 million) combined.

Bill Clinton

- U.S. President
- \$200,000
- Given all of Clinton's headaches this year, it's good he's not doing it for the money.

Others find it fascinating that 3.95 million children were born in the United States last year. Observers of the new recidivism program in Oregon, Florida, and other states are watching the recidivism rate since the boot camp program was instituted. (*Recidivism* refers to relapse into criminal activities following release from prison.) According to the Oregon Department of Corrections, the recidivism rate dropped from 47 percent to 40 percent in three years and predictions are it will be down to 35 percent shortly. In contrast, a Florida Department of Juvenile Justice researcher reports that almost 75 percent of the juvenile offenders who graduated from boot camp were re-arrested in their first year of freedom. Finally, only 27 percent of the homes in the United States have personal computers.

