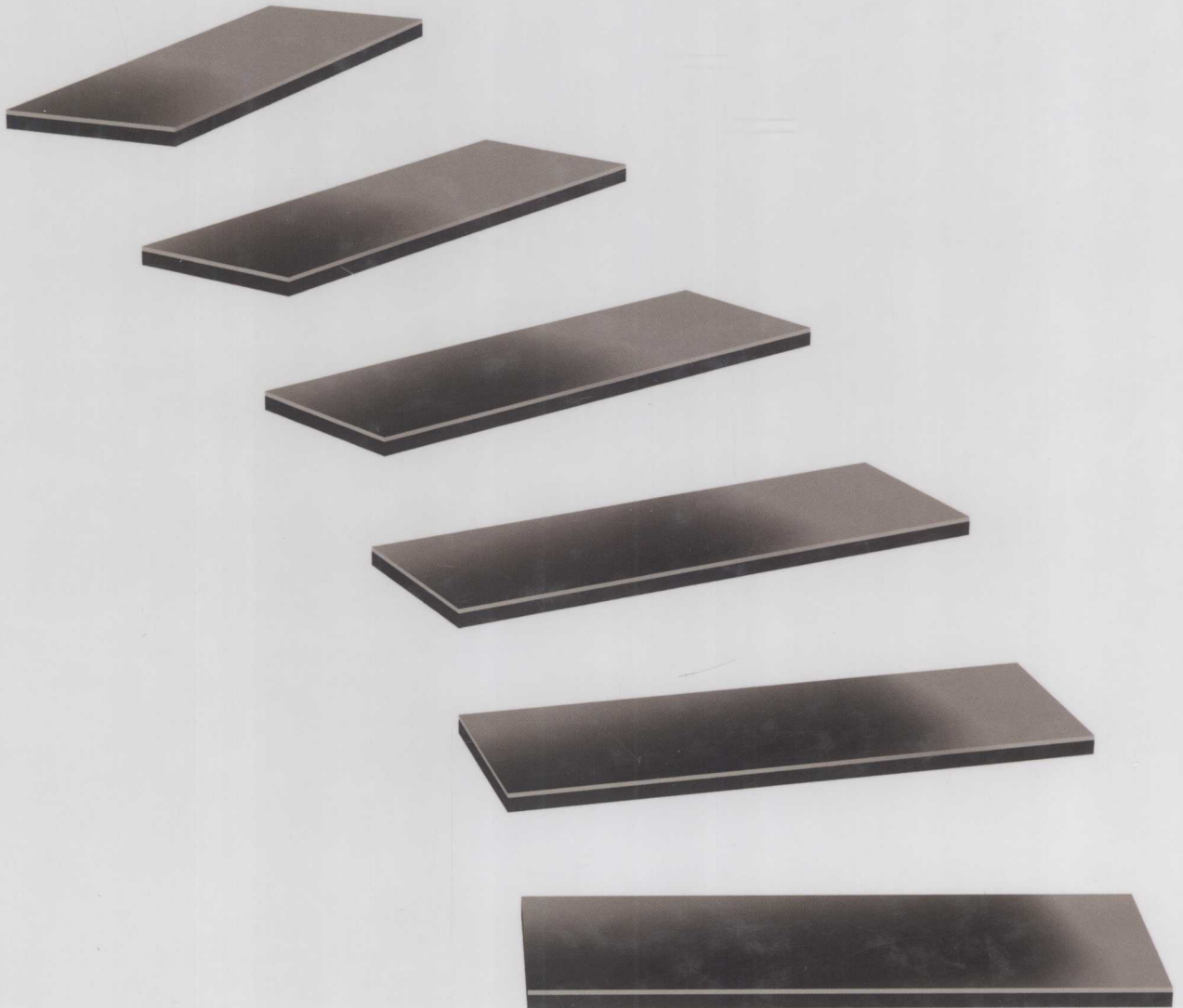


STATISTICAL TECHNIQUES IN BUSINESS & ECONOMICS

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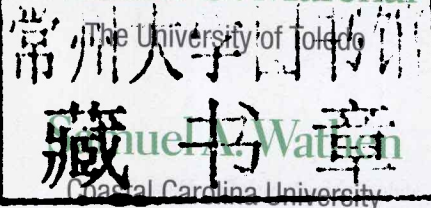
Statistical Techniques in Business & Economics

Fifteenth Edition

Douglas A. Lind

Coastal Carolina University and The University of Toledo

William G. Marchal



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STATISTICAL TECHNIQUES IN BUSINESS & ECONOMICS

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Dedication

To Jane, my wife and best friend, and our sons, their wives, and our grandchildren: Mike and Sue (Steve and Courtney), Steve and Kathryn (Kennedy and Jake), and Mark and Sarah (Jared, Drew, and Nate).

Douglas A. Lind

To John Eric Mouser, his siblings, parents, and Granny.

William G. Marchal

To my wonderful family: Isaac, Hannah, and Barb.

Samuel A. Wathen

A Note from

Over the years, we have received many compliments on this text and understand that it's a favorite among students. We accept that as the highest compliment and continue to work very hard to maintain that status.

The objective of *Statistical Techniques in Business and Economics* is to provide students majoring in management, marketing, finance, accounting, economics, and other fields of business administration with an introductory survey of the many applications of descriptive and inferential statistics. We focus on business applications, but we also use many exercises and examples that relate to the current world of the college student. A previous course in statistics is not necessary, and the mathematical requirement is first-year algebra.

In this text, we show beginning students every step needed to be successful in a basic statistics course. This step-by-step approach enhances performance, accelerates preparedness, and significantly improves motivation. Understanding the concepts, seeing and doing plenty of examples and exercises, and comprehending the application of statistical methods in business and economics are the focus of this book.

The first edition of this text was published in 1967. At that time, locating relevant business data was difficult. That has changed! Today, locating data is not a problem. The number of items you purchase at the grocery store is automatically recorded at the checkout counter. Phone companies track the time of our calls, the length of calls, and the identity of the person called. Credit card companies maintain information on the number, time and date, and amount of our purchases. Medical devices automatically monitor our heart rate, blood pressure, and temperature from remote locations. A large amount of business information is recorded and reported almost instantly. CNN, USA Today, and MSNBC, for example, all have websites that track stock prices with a delay of less than 20 minutes.

Today, skills are needed to deal with a large volume of numerical information. First, we need to be critical consumers of information presented by others. Second, we need to be able to reduce large amounts of information into a concise and meaningful form to enable us to make effective interpretations, judgments, and decisions. All students have calculators and most have either personal computers or access to personal computers in a campus lab. Statistical software, such as Microsoft Excel and Minitab, is available on these computers. The commands necessary to achieve the software results are available in a special section at the end of each chapter. We use screen captures within the chapters, so the student becomes familiar with the nature of the software output.

Because of the availability of computers and software, it is no longer necessary to dwell on calculations. We have replaced many of the calculation examples with interpretative ones, to assist the student in understanding and interpreting the statistical results. In addition, we now place more emphasis on the conceptual nature of the statistical topics. While making these changes, we still continue to present, as best we can, the key concepts, along with supporting interesting and relevant examples.

What's New in This Fifteenth Edition?

We have made changes to this edition that we think you and your students will find useful and timely.

- We have revised the learning objectives so they are more specific, added new ones, identified them in the margin, and keyed them directly to sections within the chapter.
- We have replaced the key example in Chapters 1 to 4. The new example includes more variables and more observations. It presents a realistic business situation. It is also used later in the text in Chapter 13.
- We have added or revised several new sections in various chapters:
 - Chapter 7 now includes a discussion of the exponential distribution.
 - Chapter 9 has been reorganized to make it more teachable and improve the flow of the topics.
 - Chapter 13 has been reorganized and includes a test of hypothesis for the slope of the regression coefficient.
 - Chapter 17 now includes a graphic test for normality and the chi-square test for normality.
- New exercises and examples use Excel 2007 screenshots and the latest version of Minitab. We have also increased the size and clarity of these screenshots.
- There are new Excel 2007 software commands and updated Minitab commands at the ends of chapters.
- We have carefully reviewed the exercises within the chapters, those at the ends of chapters, and in the Review Section. We have added many new or revised exercises throughout. You can still find and assign your favorites that have worked well, or you can introduce fresh examples.
- Section numbers have been added to more clearly identify topics and more easily reference them.
- The exercises that contain data files are identified by an icon for easy identification.
- The Data Exercises at the end of each chapter have been revised. The baseball data has been updated to the most current completed season, 2009. A new business application has been added that refers to the use and maintenance of the school bus fleet of the Buena School District.
- There are many new photos throughout, with updated exercises in the chapter openers.

How Are Chapters Organized to

Chapter Learning Objectives

Each chapter begins with a set of learning objectives designed to provide focus for the chapter and motivate student learning. These objectives, located in the margins next to the topic, indicate what the student should be able to do after completing the chapter.

Chapter Opening Exercise

A representative exercise opens the chapter and shows how the chapter content can be applied to a real-world situation.

Introduction to the Topic

Each chapter starts with a review of the important concepts of the previous chapter and provides a link to the material in the current chapter. This step-by-step approach increases comprehension by providing continuity across the concepts.

Example/Solution

After important concepts are introduced, a solved example is given to provide a how-to illustration for students and to show a relevant business or economics-based application that helps answer the question, "What will I use this for?" All examples provide a realistic scenario or application and make the math size and scale reasonable for introductory students.

Self-Reviews

Self-Reviews are interspersed throughout each chapter and closely patterned after the preceding Examples. They help students monitor their progress and provide immediate reinforcement for that particular technique.

3

Describing Data:

Numerical Measures



The Kentucky Derby is held the first Saturday in May at Churchill Downs in Louisville, Kentucky. The race track is one and one-quarter miles. The table in Exercise 82 shows the winners since 1990, their margin of victory, the winning time, and the payoff on a \$2 bet. Determine the mean and median for the variables winning time and payoff on a \$2 bet. (See Exercise 82 and L.O2 and L.O4.)

Learning Objectives

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

- L.O1 Explain the concept of central tendency.
- L.O2 Identify and compute the arithmetic mean.
- L.O3 Compute and interpret the weighted mean.
- L.O4 Determine the median.
- L.O5 Identify the mode.
- L.O6 Calculate the geometric mean.
- L.O7 Explain and apply measures of dispersion.
- L.O8 Compute and explain the variance and the standard deviation.
- L.O9 Explain Chebyshev's Theorem and the Empirical Rule.
- L.O10 Compute the mean and standard deviation of grouped data.

2.1 Introduction


The highly competitive automobile retailing industry in the United States has changed dramatically in recent years. These changes spurred events such as the:

- bankruptcies of General Motors and Chrysler in 2009.
- elimination of well-known brands such as Pontiac and Saturn.
- closing of over 1,500 local dealerships.
- collapse of consumer credit availability.
- consolidation dealership groups.

Traditionally, a local family owned and operated the community dealership, which might have included one or two manufacturers or brands, like Pontiac and GMC Trucks or Chrysler and the popular Jeep line. Recently, however, skillfully managed and well-financed companies have been acquiring local dealer-



Example




Solution

Layton Tire and Rubber Company wishes to set a minimum mileage guarantee on its new MX100 tire. Tests reveal the mean mileage is 67,900 with a standard deviation of 2,050 miles and that the distribution of miles follows the normal probability distribution. Layton wants to set the minimum guaranteed mileage so that no more than 4 percent of the tires will have to be replaced. What minimum guaranteed mileage should Layton announce?

The facets of this case are shown in the following diagram, where X represents the minimum guaranteed mileage.

Self-Review 3-6



The weights of containers being shipped to Ireland are (in thousands of pounds):

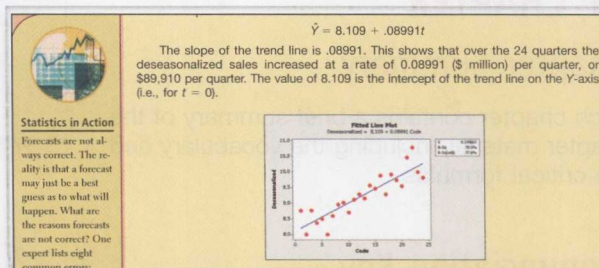
95	103	105	110	104	105	112	90
----	-----	-----	-----	-----	-----	-----	----

- (a) What is the range of the weights?
- (b) Compute the arithmetic mean weight.
- (c) Compute the mean deviation of the weights.

Engage Students and Promote Learning?

Statistics in Action

Statistics in Action articles are scattered throughout the text, usually about two per chapter. They provide unique and interesting applications and historical insights in the field of statistics.



Margin Notes

There are more than 300 concise notes in the margin. Each is aimed at reemphasizing the key concepts presented immediately adjacent to it.

Definitions

Definitions of new terms or terms unique to the study of statistics are set apart from the text and highlighted for easy reference and review.

The variance is non-negative and is zero only if all observations are the same.

STANDARD DEVIATION The square root of the variance.

Variance and standard deviation are based on squared deviations from the mean.

Population Variance The formulas for the population variance and the sample variance are slightly different. The population variance is considered first. (Recall that a population is the totality of all observations being studied.) The **population variance** is found by:

Formulas

Formulas that are used for the first time are boxed and numbered for reference. In addition, a formula card is bound into the back of the text, which lists all the key formulas.

POPULATION VARIANCE

$$\sigma^2 = \frac{\sum(X - \mu)^2}{N}$$

[3-8]

Exercises

Exercises are included after sections within the chapter and at the end of the chapter. Section exercises cover the material studied in the section.

connect **Exercises**

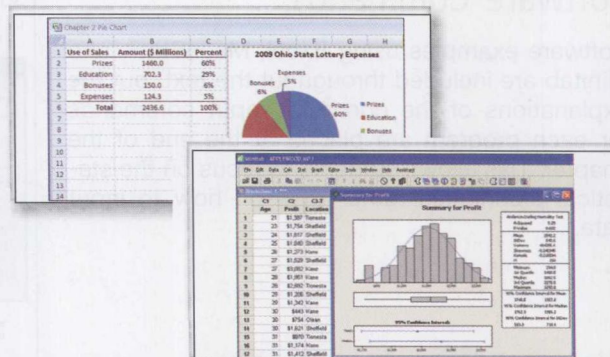
For Exercises 35–38, calculate the (a) range, (b) arithmetic mean, (c) mean deviation, and (d) interpret the values.

35. There were five customer service representatives on duty at the Electronic Super Store during last weekend's sale. The numbers of HDTVs these representatives sold are: 5, 8, 4, 10, and 3.

36. The Department of Statistics at Western State University offers eight sections of basic statistics. Following are the numbers of students enrolled in these sections: 34, 46, 52, 29, 41, 38, 36, and 28.

Computer Output

The text includes many software examples, using Excel, MegaStat®, and Minitab.



How Does This Text

BY CHAPTER

Chapter Summary

Each chapter contains a brief summary of the chapter material, including the vocabulary and the critical formulas.

Pronunciation Key

This tool lists the mathematical symbol, its meaning, and how to pronounce it. We believe this will help the student retain the meaning of the symbol and generally enhance course communications.

Chapter Exercises

Generally, the end-of-chapter exercises are the most challenging and integrate the chapter concepts. The answers and worked-out solutions for all odd-numbered exercises appear at the end of the text. For exercises with more than 20 observations, the data can be found on the text's website. These files are in Excel and Minitab formats.

Data Set Exercises

The last several exercises at the end of each chapter are based on three large data sets. These data sets are printed in Appendix A in the text and are also on the text's website. These data sets present the students with real-world and more complex applications.

Software Commands

Software examples using Excel, MegaStat®, and Minitab are included throughout the text, but the explanations of the computer input commands for each program are placed at the end of the chapter. This allows students to focus on the statistical techniques rather than on how to input data.

Chapter Summary

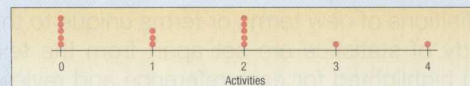
- I. A dot plot shows the range of values on the horizontal axis and the number of observations for each value on the vertical axis.
 - A. Dot plots report the details of each observation.
 - B. They are useful for comparing two or more data sets.
- II. A stem-and-leaf display is an alternative to a histogram.
 - A. The leading digit is the stem and the trailing digit the leaf.
 - B. The advantages of a stem-and-leaf display over a histogram include:

Pronunciation Key

SYMBOL	MEANING	PRONUNCIATION
L_p	Location of percentile	L sub p
Q_1	First quartile	Q sub 1
Q_3	Third quartile	Q sub 3

Chapter Exercises

27. A sample of students attending Southeast Florida University is asked the number of social activities in which they participated last week. The chart below was prepared from the sample data.

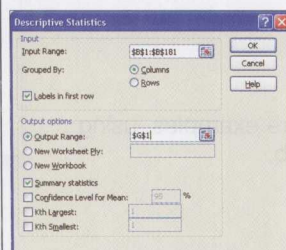


Data Set Exercises

44. Refer to the Real Estate data, which reports information on homes sold in the Goodyear, Arizona, area during the last year. Prepare a report on the selling prices of the homes. Be sure to answer the following questions in your report.
- a. Develop a box plot. Estimate the first and the third quartiles. Are there any outliers?
 - b. Develop a scatter diagram with price on the vertical axis and the size of the home on the horizontal. Does there seem to be a relationship between these variables? Is the relationship direct or inverse?
 - c. Develop a scatter diagram with price on the vertical axis and distance from the center of the city on the horizontal axis. Does there seem to be a relationship between these variables? Is the relationship direct or inverse?
45. Refer to the Baseball 2009 data, which reports information on the 30 Major League Baseball teams for the 2009 season. Refer to the variable team salary.
- a. Select the variable that refers to the year in which the stadium was built. (Hint: Subtract the year in which the stadium was built from the current year to find the age of the stadium and work this variable.) Develop a box plot. Are there any outliers? Which stadiums are outliers?
 - b. Select the variable team salary and draw a box plot. Are there any outliers? What are the quartiles? Write a brief summary of your analysis. How do the salaries of the New York Yankees compare with the other teams?

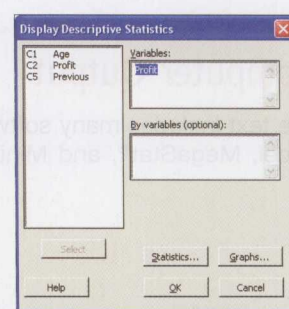
Software Commands

1. The Excel Commands for the descriptive statistics on page 69 are:



- a. From the CD, retrieve the Applewood data.
- b. From the menu bar, select **Data** and then **Data Analysis**. Select **Descriptive Statistics** and then click **OK**.

2. The Minitab commands for the descriptive summary on page 84 are:



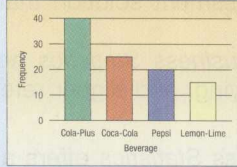
Reinforce Student Learning?

Answers to Self-Review

The worked-out solutions to the Self-Reviews are provided at the end of each chapter.

Chapter 2 Answers to Self-Review

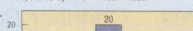
2-1 a. Qualitative data, because the customers' response to the taste test is the name of a beverage.
b. Frequency table. It shows the number of people who prefer each beverage.
c.



2-3 a. $2^7 = 64 < 73 < 128 = 2^7$. So seven classes are recommended.
b. The interval width should be at least $(488 - 300)/7 = 24$. Class intervals of 25 or 30 feet are both reasonable.
c. If we use a class interval of 25 feet and begin with a lower limit of 300 feet, eight classes would be necessary. A class interval of 30 feet beginning with 300 feet is also reasonable. This alternative requires only seven classes.

2-4 a. 45
b. 250
c. .305, found by $.178 + .106 + .022$

2-5 a.



BY SECTION

Section Reviews

After selected groups of chapters (1–4, 5–7, 8 and 9, 10–12, 13 and 14, 15 and 16, and 17 and 18), a Section Review is included. Much like a review before an exam, these include a brief **overview** of the chapters, a **glossary** of key terms, and **problems for review**.

A Review of Chapters 1–4

This section is a review of the major concepts and terms introduced in Chapters 1–4. Chapter 1 began by describing the meaning and purpose of statistics. Next we described the different types of variables and the four levels of measurement. Chapter 2 was concerned with describing a set of observations by organizing it into a frequency distribution and then portraying the frequency distribution as a histogram or a frequency polygon. Chapter 3 began by describing measures of location, such as the mean, weighted mean, median, geometric mean, and mode. This chapter also included measures of dispersion, or spread. Discussed in this section were the range, mean deviation, variance, and standard deviation. Chapter 4 included several graphing techniques such as dot plots, box plots, and scatter diagrams. We also discussed the coefficient of skewness, which reports the lack of symmetry in a set of data.

Throughout this section we stressed the importance of statistical software, such as Excel and Minitab. Many computer outputs in these chapters demonstrated how quickly and effectively a large data set can be organized into a frequency distribution, several of the measures of location or measures of variation calculated, and the information presented in graphical form.

Glossary

Chapter 1

Descriptive statistics The techniques used to describe the important characteristics of a set of data. This includes organizing the data values into a frequency distribution, computing measures of location, and computing mea-

90 degrees is 10 degrees more than a temperature of 80 degrees, and so on.

Nominal measurement The "lowest" level of measurement. If data are classified into categories and the order of those categories is not important, it is the nominal level of

Cases

The review also includes continuing cases and several small cases that let students make decisions using tools and techniques from a variety of chapters.

Cases

A. Century National Bank

The following case will appear in subsequent review sections. Assume that you work in the Planning Department of the Century National Bank and report to Mr. Lamborg. You will need to do some data analysis and prepare a short written report. Remember, Mr. Selig is the president of the bank, so you will want to ensure that your report is complete and accurate. A copy of the data appears in Appendix A.6.

Century National Bank has offices in several cities in the Midwest and the southeastern part of the United States. Mr. Don Selig, president and CEO, would like to know the characteristics of his checking account customers. What is the balance of a typical customer?

How many other bank services do the checking account customers use? Do the customers use the ATM service and, if so, how often? What about debit cards? Who uses them, and how often are they used?

To better understand the customers, Mr. Selig asked Ms. Wendy Lamborg, director of planning, to select a sample of customers and prepare a report. To begin, she has appointed a team from her staff. You are the head of the team and responsible for preparing the report. You select a random sample of 60 customers. In addition to the balance in each account at the end of last month, you determine: (1) the number of ATM auto-

median balances for the four branches. Is there a difference among the branches? Be sure to explain the difference between the mean and the median in your report.

3. Determine the range and the standard deviation of the checking account balances. What do the first and third quartiles show? Determine the coefficient of skewness and indicate what it shows. Because Mr. Selig does not deal with statistics daily, include a brief description and interpretation of the standard deviation and other measures.

B. Wildcat Plumbing Supply Inc.: Do We Have Gender Differences?

Wildcat Plumbing Supply has served the plumbing needs of Southwest Arizona for more than 40 years. The company was founded by Mr. Terrence St. Julian and is run today by his son Cory. The company has grown from a handful of employees to more than 500 today. Cory is concerned about several positions within the company where he has men and women doing essentially the same job but at different pay. To investigate, he collected the information below. Suppose you are a student intern in the Accounting Department and have been given the task to write a report

Practice Test

The Practice Test is intended to give students an idea of content that might appear on a test and how the test might be structured. The Practice Test includes both objective questions and problems covering the material studied in the section.

Practice Test

There is a practice test at the end of each review section. The tests are in two parts. The first part contains several objective questions, usually in a fill-in-the-blank format. The second part is problems. In most cases, it should take 30 to 45 minutes to complete the test. The problems require a calculator. Check the answers in the Answer Section in the back of the book.

Part 1—Objective

1. The science of collecting, organizing, presenting, analyzing, and interpreting data to assist in making effective decisions is called _____. 1. _____
2. Methods of organizing, summarizing, and presenting data in an informative way is called _____. 2. _____
3. The entire set of individuals or objects of interest or the measurements obtained from all individuals or objects of interest is called the _____. 3. _____
4. List the two types of variables. 4. _____
5. The number of bedrooms in a house is an example of a _____. (discrete variable, continuous variable, qualitative variable—pick one) 5. _____
6. The jersey numbers of Major League Baseball players is an example of what level of measurement? 6. _____
7. The classification of students by eye color is an example of what level of measurement? 7. _____
8. The sum of the differences between each value and the mean is always equal to what value? 8. _____
9. A set of data contained 70 observations. How many classes would you suggest in order to construct a frequency distribution? 9. _____
10. What percent of the values in a data set are always larger than the median? 10. _____
11. The square of the standard deviation is the _____. 11. _____
12. The standard deviation assumes a negative value when _____. (All the values are negative, when at least half the values are negative, or never—pick one.) 12. _____
13. Which of the following is least affected by an outlier? (mean, median, or range—pick one) 13. _____

Part 2—Problems

1. The Russell 2000 index of stock prices increased by the following amounts over the last three years.

18%	4%	2%
-----	----	----

What is the geometric mean increase for the three years?

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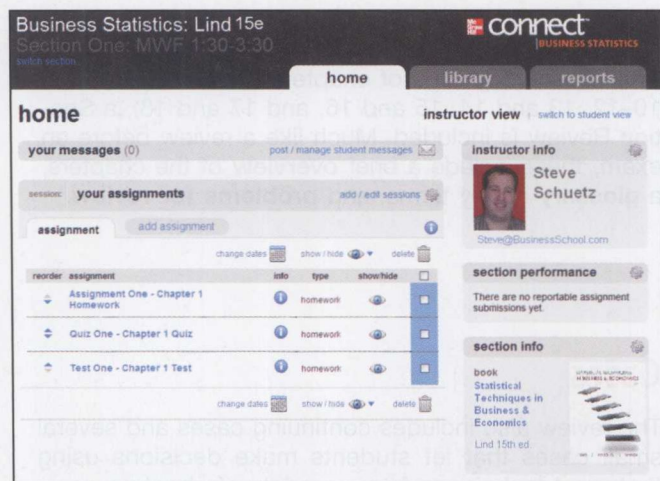
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Integration of Excel Data Sets. A convenient feature is the inclusion of an Excel data file link in many problems using data files in their calculation. This allows students to easily launch into Excel, work the problem, and return to *Connect* to key in the answer.

Exercise 12-32

A study of the effect of television commercials on 12-year-old children measured their attention span, in seconds. The commercials were for clothes, food, and toys.

	Clothes	Food	Toys
26	45	60	
21	48	51	
43	43	43	
36	53	54	
28	47	63	
31	42	53	
17	34	48	
31	43	58	
20	57	47	
	47	51	
	44	51	
	54		

[Click here for the Excel Data File](#)

Excel Integrated Data File

Required:

(a) Complete the ANOVA table. Use .05 significance level. (Round the SS and MS values to 1 decimal place and F value to 2 decimal places. Round the DF values to nearest whole number.)

Source	DF	SS	MS	F	P
Factor					
Error					
Total					

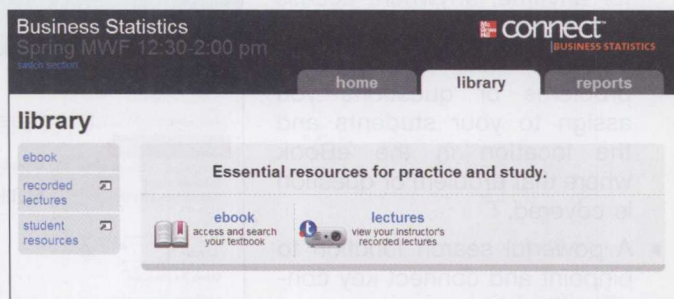
Students to Business Statistics?

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- Reinforce classroom concepts with practice tests and instant quizzes.

Instructor Library. The *Connect Business Statistics* Instructor Library is your repository for additional resources to improve student engagement in and out of class. You can select and use any asset that enhances your lecture. The *Connect Business Statistics* Instructor Library includes:

- eBook
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- Test Bank
- Solutions Manual
- Digital Image Library



Student Study Center. The *Connect Business Statistics* Student Study Center is the place for students to access additional resources. The Student Study Center:

- Offers students quick access to lectures, practice materials, eBooks, and more.
- Provides instant practice material and study questions and is easily accessible on-the-go.

Guided Examples. These narrated video walkthroughs provide students with step-by-step guidelines for solving problems similar to those contained in the text. The student is given personalized instruction on how to solve a problem by applying the concepts presented in the chapter.

Student Progress Tracking. *Connect Business Statistics* keeps instructors informed about how each student, section, and class is performing, allowing for more productive use of lecture and office hours. The progress-tracking function enables you to:

- View scored work immediately and track individual or group performance with assignment and grade reports.
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- Collect data and generate reports required by many accreditation organizations, such as AACSB.

assignment results

report type: Assignment Results

Use the options below to view assignment scores.

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assignment results: Multiple Sections

report created: 09/09/2010 9:57 AM CDT

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attempt: Best

score style: Percents (Averaged)

assignment type: Homework, Practice, Quiz, Exam

Select the checkboxes on columns you want to export or print.

export to excel

Section	<input checked="" type="checkbox"/> Assignment 1	<input checked="" type="checkbox"/> Assignment 2	<input checked="" type="checkbox"/> Exam 1
Total Value (Points)	20	25	20
Townsend, Rachel Section One: MWF 1:30-3:30	89%	91.50%	89%
Mann, Becky Section One: MWF 1:30-3:30	85.33%	93%	85%
Dalo, Danielle Section One: MWF 1:30-3:30	89%	91.50%	91%
Billows, Nancy Section One: MWF 1:30-3:30	85.33%	93%	93%

What Technology Connects

McGraw-Hill CONNECT™ PLUS BUSINESS STATISTICS

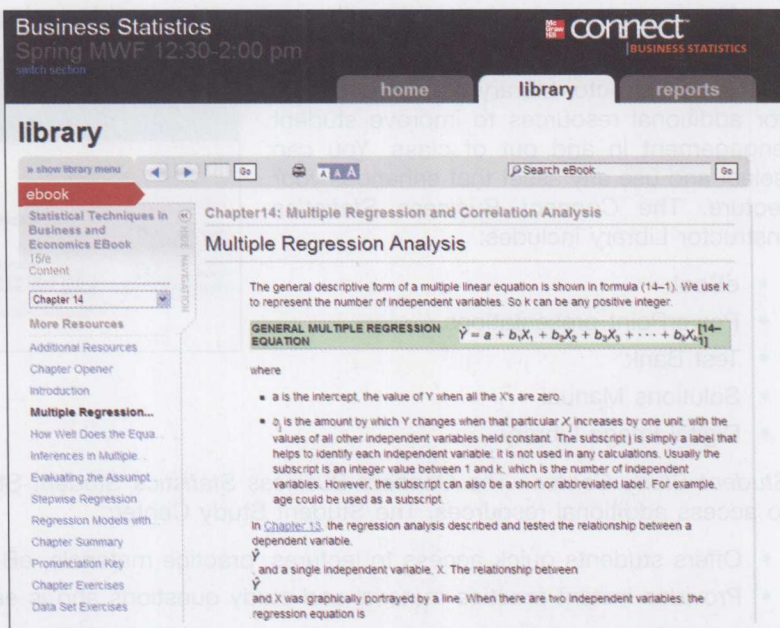


McGraw-Hill Connect Plus Business Statistics. McGraw-Hill reinvents the textbook learning experience for the modern student with *Connect Plus Business Statistics*. A seamless integration of an eBook and *Connect Business Statistics*, *Connect Plus Business Statistics* provides all of the *Connect Business Statistics* features plus the following:

- An integrated eBook, allowing for anytime, anywhere access to the textbook.
- Dynamic links between the problems or questions you assign to your students and the location in the eBook where that problem or question is covered.
- A powerful search function to pinpoint and connect key concepts in a snap.

In short, *Connect Business Statistics* offers you and your students powerful tools and features that optimize your time and energies, enabling you to focus on course content, teaching, and student learning. *Connect Business Statistics* also offers a wealth of content resources for both instructors and students.

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Tegrity Campus is a service that makes class time available 24/7 by automatically capturing every lecture in a searchable format for students to review when they study and complete assignments. With a simple one-click start-and-stop process, you capture all computer screens and corresponding audio. Students can replay any part of any class with easy-to-use browser-based viewing on a PC or Mac.

McGraw-Hill Tegrity Campus



Educators know that the more students can see, hear, and experience class resources, the better they learn. In fact, studies prove it. With *Tegrity Campus*, students quickly recall key moments by using *Tegrity Campus*'s unique search feature. This search helps students efficiently find what they need, when they need it, across an entire semester of class recordings. Help turn all your students' study time into learning moments immediately supported by your lecture.

To learn more about *Tegrity*, watch a two-minute Flash demo at <http://tegritycampus.mhhe.com>.

Students to Business Statistics?

Assurance-of-Learning Ready

Many educational institutions today are focused on the notion of *assurance of learning* an important element of some accreditation standards. *Statistical Techniques in Business & Economics* is designed specifically to support your assurance-of-learning initiatives with a simple, yet powerful solution.

Each test bank question for *Statistical Techniques in Business & Economics* maps to a specific chapter learning outcome/objective listed in the text. You can use our test bank software, EZ Test and EZ Test Online, or *Connect Business Statistics* to easily query for learning outcomes/objectives that directly relate to the learning objectives for your course. You can then use the reporting features of EZ Test to aggregate student results in similar fashion, making the collection and presentation of assurance of learning data simple and easy.

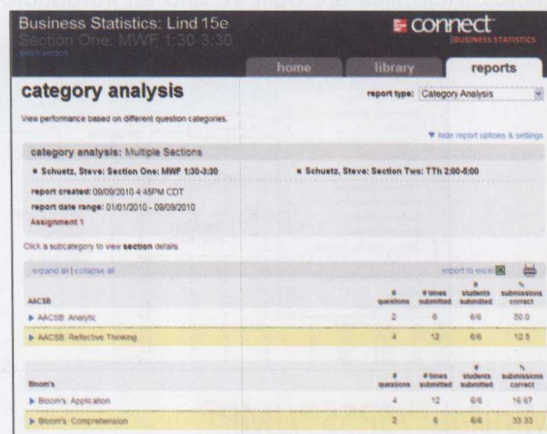
AACSB Statement

The McGraw-Hill Companies is a proud corporate member of AACSB International. Understanding the importance and value of AACSB accreditation, *Statistical Techniques in Business & Economics* recognizes the curricula guidelines detailed in the AACSB standards for business accreditation by connecting selected questions in the text and the test bank to the six general knowledge and skill guidelines in the AACSB standards.

The statements contained in *Statistical Techniques in Business & Economics* are provided only as a guide for the users of this textbook. The AACSB leaves content coverage and assessment within the purview of individual schools, the mission of the school, and the faculty. While *Statistical Techniques in Business & Economics* and the teaching package make no claim of any specific AACSB qualification or evaluation, we have labeled selected questions within *Statistical Techniques in Business & Economics* according to the six general knowledge and skills areas.

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Business Statistics: Lind 15e
Section One: MWVF 1:30-3:30

connect BUSINESS STATISTICS

home library reports

category analysis

report type: Category Analysis

View performance based on different question categories.

category analysis: Multiple Sections

• Schuetz, Steve: Section One: MWVF 1:30-3:30

• Schuetz, Steve: Section Two: TTh 2:00-5:00

report created: 08/09/2010 4:48PM CDT

report date range: 01/01/2010 - 08/09/2010

Assignment 1

Click a subcategory to view section details

expand all | collapse all

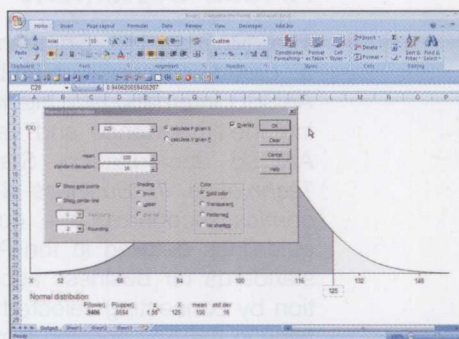
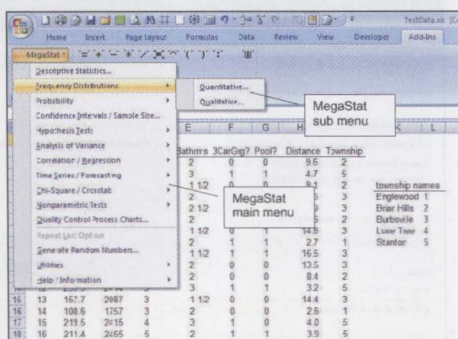
	# questions	# times submitted	# students submitted	% submissions correct
AACSB				
▶ AACSB: Analytic	2	6	6/6	50.0
▶ AACSB: Reflective Thinking	4	12	6/6	12.5
Bloom's				
▶ Bloom's: Application	4	12	6/6	16.67
▶ Bloom's: Comprehension	2	6	6/6	33.33

What Software Is Available with This Text?

MegaStat[®] for Microsoft Excel[®]

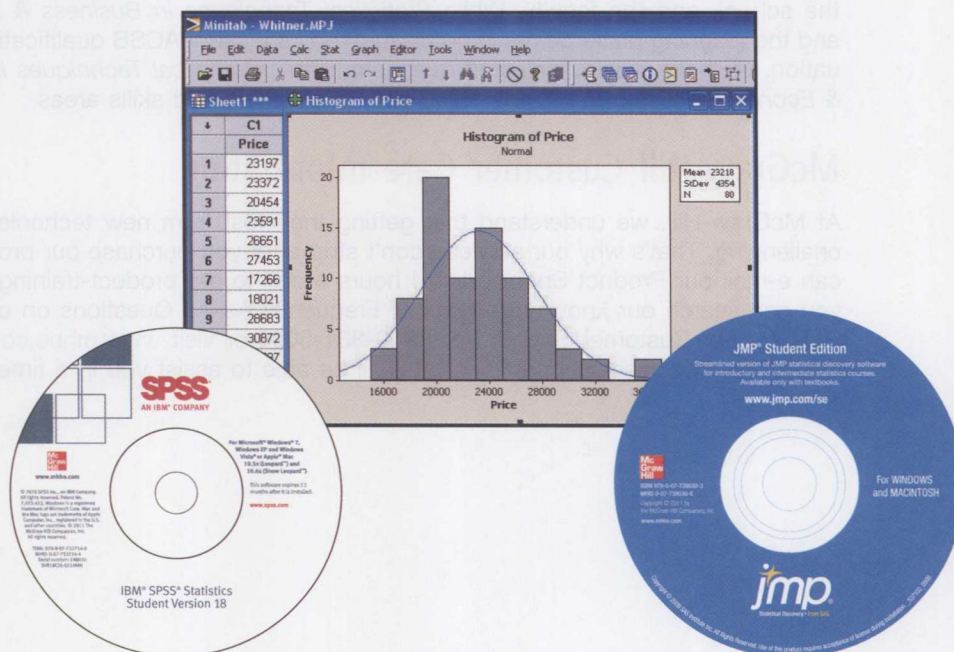
MegaStat[®] by J. B. Orris of Butler University is a full-featured Excel add-in that is available on CD and on the *MegaStat* website at www.mhhe.com/megastat. It works with Excel 2003, 2007, and 2010. On the website, students have 10 days to successfully download and install *MegaStat* on their local computer. Once installed, *MegaStat* will remain active in Excel with no expiration date or time limitations. The software performs statistical analyses within an Excel workbook. It does basic functions, such as descriptive statistics, frequency distributions, and probability calculations as well as hypothesis testing, ANOVA, and regression.

MegaStat output is carefully formatted and ease-of-use features include Auto Expand for quick data selection and Auto Label detect. Since *MegaStat* is easy to use, students can focus on learning statistics without being distracted by the software. *MegaStat* is always available from Excel's main menu. Selecting a menu item pops up a dialog box. *MegaStat* works with all recent versions of Excel, including Excel 2007 and Excel 2010. Screencam tutorials are included that provide a walkthrough of major business statistics topics. Help files are built in, and an introductory user's manual is also included.



Minitab[®]/SPSS[®]/JMP[®]

Minitab[®] Student Version 14, SPSS[®] Student Version 18.0, and JMP[®] Student Edition Version 8 are software tools that are available to help students solve the business statistics exercises in the text. Each can be packaged with any McGraw-Hill business statistics text.



What Resources Are Available for Instructors?

Instructor's Resources CD-ROM (ISBN: 0077327055)

This resource allows instructors to conveniently access the Instructor's Solutions Manual, Test Bank in Word and EZ Test formats, Instructor PowerPoint slides, data files, and data sets.

Online Learning Center: www.mhhe.com/lind15e

The Online Learning Center (OLC) provides the instructor with a complete Instructor's Manual in Word format, the complete Test Bank in both Word files and computerized EZ Test format, Instructor PowerPoint slides, text art files, an introduction to ALEKS®, an introduction to McGraw-Hill Connect Business Statistics™, access to Visual Statistics, and more.



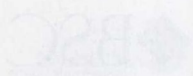
All test bank questions are available in an EZ Test electronic format. Included are a number of multiple-choice, true/false, and short-answer questions and problems. The answers to all questions are given, along with a rating of the level of difficulty, chapter goal the question tests, Bloom's taxonomy question type, and the AACSB knowledge category.

WebCT/Blackboard/eCollege

All of the material in the Online Learning Center is also available in portable WebCT, Blackboard, or eCollege content "cartridges" provided free to adopters of this text.



Do More



What Resources Are Available for Students?

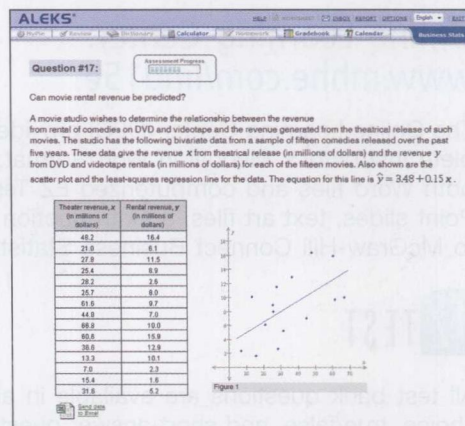
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ALEKS®

ALEKS is an assessment and learning program that provides individualized instruction in Business Statistics, Business Math, and Accounting. Available online in partnership with McGraw-Hill/Irwin, ALEKS interacts with students much like a skilled human tutor, with the ability to assess precisely a student's knowledge and provide instruction on the exact topics the student is most ready to learn. By providing topics to meet individual students' needs, allowing students to move between explanation and practice, correcting and analyzing errors, and defining terms, ALEKS helps students to master course content quickly and easily.



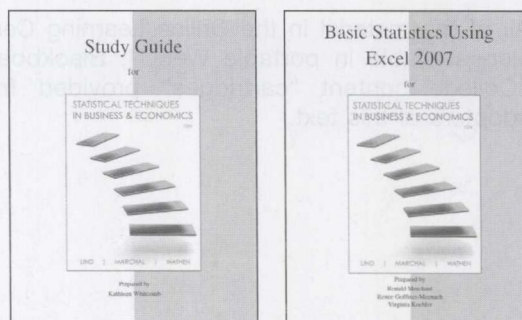
ALEKS also includes a new instructor module with powerful, assignment-driven features and extensive content flexibility. ALEKS simplifies course management and allows instructors to spend less time with administrative tasks and more time directing student learning. To learn more about ALEKS, visit www.aleks.com.

Online Learning Center: www.mhhe.com/lind15e

The Online Learning Center (OLC) provides students with the following content:

- Quizzes
- PowerPoint
- *Narrated PowerPoint
- *ScreenCam tutorials
- *Guided Examples
- *Visual Statistics
- Data sets/files
- Appendixes
- Chapter 20

*Premium Content



Student Study Guide (ISBN: 007732711X)

This supplement helps students master the course content. It highlights the important ideas in the text and provides opportunities for students to review the worked-out solutions, review terms and concepts, and practice.

Basic Statistics Using Excel 2007 (ISBN: 0077327020)

This workbook introduces students to Excel and shows how to apply it to introductory statistics. It presumes no prior familiarity with Excel or statistics and provides step-by-step directions in a how-to style using Excel 2007 with text examples and problems.

Business Statistics Center (BSC): www.mhhe.com/bstat/



The BSC contains links to statistical publications and resources, software downloads, learning aids, statistical websites and databases, and McGraw-Hill/Irwin product websites and online courses.