



美国商学院原版教材精选系列

PEARSON

商务统计学

决策方法

Business Statistics

A Decision-Making Approach

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出 版 说 明

为了适应经济全球化的发展趋势,满足国内广大读者了解、学习和借鉴国外先进管理经验和掌握经济理论前沿动态的需要,清华大学出版社与国外著名出版公司合作影印出版一系列英文版经济管理方面的图书。我们所选择的图书,基本上是已再版多次、在国外深受欢迎、并被广泛采用的优秀教材,绝大部分是该领域中较具权威性的经典之作。在选书的过程中,我们得到了很多专家、学者的支持、帮助和鼓励,在此表示谢意!

由于原作者所处国家的政治、经济和文化背景等与我国不同,对书中所持观点,敬请广大读者在阅读过程中注意加以分析和鉴别。

我们期望这套影印书的出版对我国经济科学的发展能有所帮助,对我国经济管理专业的教学能有所促进。

欢迎广大读者给我们提出宝贵的意见和建议,同时也欢迎有关的专业人士向我们推荐您所接触到的国外优秀图书。

清华大学出版社

英/双语教学的成功路径与商科英文原版教材的效用

(代序)

在我国高校,用英语或双语教授专业课程(以下简称:英/双语教学)始于改革开放引进热潮,历经30年,虽发展不快,仍在缓慢推进。20世纪80年代,改革开放后留学归来的教育界学者们不仅引进了各学科先进的研究成果,也随之引进了西方高校的教材。以清华大学出版社为领军的国内出版社适时地引进了西方优秀教材的影印版,推动了一些高校开始在专业课程中开展英/双语教学。2007年以来,国家教育质量工程专设的“国家高校双语教学示范课程建设点”的评定项目被视为政府教育发展的政策风向标,正有力地推动着高校英/双语教学的发展。

但对英/双语教学的必要性,我国高校内部一直争议不断。争议首先围绕着中国人用英语教学的必要性。在公认英语是目前世界通用语言的前提下,英/双语教学的必要性取决于我国高校师生是否有必要及时汲取世界最新的知识和研究成果。答案是不言而喻的。况且英/双语教学省却了翻译过程,可以避免常见的信息减损和曲解问题。不过,信息发布者——教师的英语演讲能力和信息接收者——学生的英语解读能力不足又成为开展英/双语教学的障碍。因而常见的反对意见是,开展英/双语教学,课堂教学内容就会缩水,因为讲授者和听众都得花费精力和时间解译内容。如此看来,我国开展英/双语教学的高校教师必须应对挑战,洞察在我国现有条件下用英文原版教材开展英/双语教学的利和弊,并找到可行的扬长避短的路径。

在经济开放和全球化的大趋势推动下,我国中小学英语教学分量加重,英语普及程度逐年提高,高校新生的英语基础愈益扎实;教师的英语能力也随着师资的新陈代谢而日见增强。这一趋势无疑在为英/双语教学营造越来越有利的条件。尽管如此,不同于以英语为主要语言或官方语言的一些国家,英语在我国的普及率仍较低。在青少年中,英语的普及程度和英语应用能力还仅处于初级水平;高校中能用英语演讲的教师尚属少数,且熟练程度还有待大幅提高。这样的师生英语基础,使得英/双语教学面临巨大的挑战。

同时,在多数的中国高校课堂里,教学任务多被视为逐章讲解某本教材的内容。本土中文教材通常是400~500页的32开本,含理论框架、主要知识点、计算方法和习题,但案例和故事不在其中,多由教师在讲解时添加,以演示和诠释理论要点。迄今仍然普遍盛行的“填鸭式”、“满堂灌”的传统教学法侧重于传授知识,从多数评教指标可见,只要学生感觉教师讲得精彩、有条理、能解惑,就算教学成功。

而引进的国外教材篇幅通常较长,16开大本,500~800页。习惯于上述传统教学法和评价标准的人们自然会产生一个疑问:在有限的课时内,这么厚的教材,怎么讲得完?其实,发达国家多数高校对学生阅读量的要求远远大于我国高校(即使是中文课本和资料),名校更是如此。它们的教材不仅涵盖理论框架和基本概念,而且富含长短不一、详简各异的演示性案例、故事和大量习题,总之它便于学生自学。课堂讲解只占一半课时,其余课时常被用于师生讨论和互动。于是,教师的讲解主要是勾勒理

论框架,阐释重点和难点,还需针对事先布置的阅读资料和讨论题,引导学生展开讨论。可见,大厚本的教材适合于能力培训教学法。两者相辅相成,致力于调动学生的主动性:他们必须大量阅读和思考,才能在课堂上有上好的表现,真正成为学习的主人。结果,他们的能力获得了必要和切实的磨炼。

由此可见,英/双语教学不只是教学语言的改变,它可以达到三重效用:传授专业知识;传授英语知识;同时训练专业方法和英语的应用技能。也因此,一些非英语国家的高校不惜成本,开展英/双语教学,使用与之相配的教材。对我国高校来说,要想成功开展英/双语教学,恐怕首先需要改变传统的教育思想和教学方法。换言之,如果高校想要使教育、教学接近世界先进水准,用英文原版影印教材开展英/双语教学是有效的途径。

迄今为止,原版英文教材的缺点也很明显。鉴于发达国家的作者是以其母国为背景,多数教材不涉及中国国情。教师必须在教学中紧密结合中国国情,提供相关案例、资料和思考讨论题,适时引导师生思辨现有理论的普适性,激励师生发现和创作适合我国国情的经济学、管理学、营销学规律。在我国作者编写和出版足量的优质英文教材之前,这些额外的工作必须由开展英/双语教学的教师来承担。

古今中外,成才之士都乐于阅读和探索,而这种氛围却在当今我国的大学校园里愈见淡化。加之中国学生相对薄弱的英语基础,目前英/双语教学仍面临很大的挑战:“填鸭式”的讲授与之相悖;仅靠课堂讲授和互动也很难奏效。但如能培养学生阅读和探索真理的兴趣,并营造一个全方位的孵化温床或生态环境,英/双语教学是有望成功的。根据能力培育过程的所需,这个生态环境包含师生对教育、教学的共识,好学求知的校风,富有挑战和师生互动的课堂教学,从课外讲座、项目操作到校园竞赛等第二课堂活动,便于师生交流的校园互联网等。

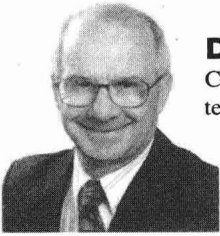
要做到这些,教师亟待与时俱进。随着师资的年轻化和高学历化,如今年轻教师的英语基础更好。但逆水行舟,不进则退。英语能力的进退取决于使用频率的多寡,其实英/双语教学过程既是加强英语使用、提高英语能力,也是汲取世界新知的最佳机会。不过,这一过程通常比用汉语教学的付出大得多,且因学生也需成倍地付出,英/双语教学的课程不容易像汉语教学课程那样容易在短期内获得学生的好评。因此给予英/双语教学的教师足够的激励成为生态环境的首要组成部分;缺乏对教师的足够激励,上述英/双语教学的生态环境就无法营造。

诚然,在教育体制和环境不够理想的情况下,教师和学生仍然有个人自训和奋斗的条件。英语原版教材影印版在我国的出版和更新就是对英/双语教学的及时支持。清华大学出版社近期又有一批英文原版影印教材出版,相信必将更进一步推动英/双语教学的发展。如今,已有一些本土高校的教师与英语国家的教师合著英文教材;在可见的将来,还会有中国教师编写发行到世界各地的英文教材。总之,及时用好英文原版影印教材,编写优质的英文教材是我国高校教师的历史责任。

愿英/双语教学的师资队伍愈益壮大,愿英/双语教学更加有力地推动我国教学方法与国际接轨,愿我国高校各级学生在英/双语教学中受益良多,茁壮成长!

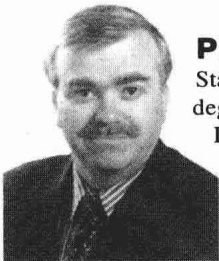
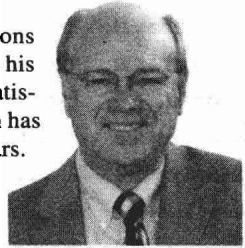
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About the Authors



David F. Groebner is Professor Emeritus of Production Management in the College of Business and Economics at Boise State University. He has bachelor's and master's degrees in engineering and a Ph.D. in business administration. After working as an engineer, he has taught statistics and related subjects for 27 years. In addition to writing textbooks and academic papers, he has worked extensively with both small and large organizations, including Hewlett-Packard, Boise Cascade, Albertson's, and Ore-Ida. He has worked with numerous government agencies, including Boise City and the U.S. Air Force.

Patrick W. Shannon, Ph.D. is Dean and Professor of Supply Chain Operations Management in the College of Business and Economics at Boise State University. In addition to his administrative responsibilities, he has taught graduate and undergraduate courses in business statistics, quality management, and production and operations management. In addition, Dr. Shannon has lectured and consulted in the statistical analysis and quality management areas for over 20 years. Among his consulting clients are Boise Cascade Corporation; Hewlett-Packard; PowerBar, Inc.; Potlatch Corporation; Woodgrain Millwork, Inc.; J.R. Simplot Company; Zilog Corporation; and numerous other public- and private-sector organizations. Professor Shannon has co-authored several university-level textbooks and has published numerous articles in such journals as *Business Horizons*, *Interfaces*, *Journal of Simulation*, *Journal of Production and Inventory Control*, *Quality Progress*, and *Journal of Marketing Research*. He obtained B.S. and M.S. degrees from the University of Montana and a Ph.D. in Statistics and Quantitative Methods from the University of Oregon.

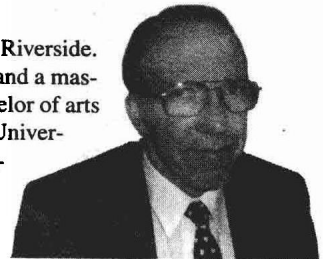


Phillip C. Fry is a Professor in the College of Business and Economics at Boise State University, where he has taught since 1988. Phil received his B.A. and M.B.A. degrees from the University of Arkansas, and his M.S. and Ph.D. degrees from Louisiana State University. His teaching and research interests are in the areas of business statistics, production management, and quantitative business modeling. In addition to his academic responsibilities, Phil has consulted with and provided training to small and large organizations, including Boise Cascade Corporation; Hewlett-Packard Corporation; The J.R. Simplot Company; United Water of Idaho; Woodgrain Millwork, Inc.; Boise City; and Micron Electronics.

Phil spends most of his free time with his wife, Susan, and his four children, Phillip Alexander, Alejandra Johanna, and twins Courtney Rene and Candace Marie.

Kent D. Smith received a Ph.D. in Applied Statistics from the University of California, Riverside. He holds a master of science degree in Statistics from the University of California, Riverside, and a master of science degree in Systems Analysis from the Air Force Institute of Technology. His bachelor of arts degree in Mathematics was obtained from the University of Utah. Dr. Smith has served as a University Statistical Consultant at the University of California, Riverside, and at California Polytechnic State University, San Luis Obispo. His private consulting has ranged from serving as an expert witness in legal cases, survey sampling for corporations and private researchers, medical and orthodontic research, and assisting graduate students with analysis required for master and doctoral degrees in various disciplines.

Dr. Smith began teaching as a part-time lecturer at California State University, San Bernardino. While completing his doctoral dissertation, he served as a lecturer at University of California, Riverside. Currently, he is Professor Emeritus of Statistics at California Polytechnic State University, San Luis Obispo. Though retired, he still teaches part time at the university. The subjects he teaches include upper-division courses in regression, analysis of variance, linear models, and probability and mathematical statistics, as well as a full array of service courses.



Preface

In today's workplace, students can have an immediate competitive edge over both new graduates and experienced employees if they know how to apply statistical analysis skills to real-world decision-making problems.

Our intent in writing *Business Statistics: A Decision-Making Approach* is to provide an introductory business statistics text for students who do not necessarily have an extensive mathematics background but who need to understand how statistical tools and techniques are applied in business decision making.

This text differs from its competitors in three key ways:

1. Use of a direct approach and concepts and techniques consistently presented in a systematic and ordered way.
2. Presentation of the content at a level that makes it accessible to students of all levels of mathematical maturity. The text features clear, step-by-step explanations that make learning business statistics straightforward.
3. Engaging examples, drawn from our years of experience as authors, educators, and consultants, to show the relevance of the statistical techniques in realistic business decision situations.

Regardless of how accessible or engaging a textbook is, we recognize that many students do not read the chapters from front to back. Instead, they use the text "backward." That is, they go to the assigned exercises and try them, and if they get stuck, they turn to the text to look for examples to help them. Thus, this text features clearly marked, step-by-step examples that students can follow. Each detailed example is linked to a section exercise, which students can use to build specific skills needed to work exercises in the section.

Each chapter begins with a clear set of specific chapter outcomes. The examples and practice exercises are designed to reinforce the objectives and lead students toward the desired outcomes. The exercises are ordered from easy to more difficult and are divided into categories: Conceptual, Skill Development, Business Applications, and Database Exercises.

Another difference is the importance this text places on data and how data are obtained. Many business statistics texts assume that data have already been collected. We have decided to underscore a more modern theme: Data are the starting point. We believe that effective decision making relies on a good understanding of the different types of data and the different data collection options that exist. To highlight our theme, we begin a discussion of data and collecting data in Chapter 1 before any discussion of data analysis is presented. In Chapters 2 and 3, where the important descriptive statistical techniques are introduced, we tie these statistical techniques to the type and level of data for which they are best suited.

Although we know that the role of the computer is important in applying business statistics, it can be overdone at the beginning level to the point where instructors are required to spend too much time teaching the software and too little time teaching statistical concepts. This text features Excel and Minitab but limits the inclusion of software output to those areas where it is of particular advantage to beginning students.

New to This Edition

- **Textual examples:** More than 50 new examples throughout the text provide step-by-step details, enabling students to follow solution techniques easily. Students can then apply the methodology from each example to solve other problems. These examples are provided in addition to the vast array of business applications to give students a real-world, competitive edge. Featured companies in these new examples include Dove Shampoo and Soap, The Frito-Lay Company, Goodyear Tire Company, Lockheed Martin Corporation, the National Federation of Independent Business, Oakland Raiders NFL Football, Southwest Airlines, and Whole Foods Grocery.
- **Visual summaries:** Each main heading is summarized using a flow diagram, which reminds students of the intended outcomes and leads them to the chapter's conclusion.



- **MyStatLab:** This proven book-specific online homework and assessment tool provides a rich and flexible set of course materials, featuring free-response exercises that are algorithmically generated for unlimited practice and mastery. Students can also use a variety of online tools to independently improve their understanding and performance in the course. Instructors can use MyStatLab's homework and test manager to select and assign their own online exercises and can import TestGen tests for added flexibility.
- **Quick prep links:** At the beginning of each chapter, students are supplied with several ways to get ready for the topics discussed in the chapter.
- **Chapter outcomes:** Identifying what is to be gained from completing the chapter helps focus a student's attention. At the beginning of each chapter, every outcome is linked to the corresponding main heading. Throughout the text, the chapter outcomes are recalled at main headings to remind students of the objectives.
- **How to do it:** Associated with the textual examples, lists are provided throughout each chapter to summarize major techniques and reinforce fundamental concepts.
- **Online chapter—Introduction to Decision Analysis:** This chapter discusses the analytic methods used to deal with the wide variety of decision situations a student might encounter.

Key Pedagogical Features

- **Business applications:** One of the strengths of the previous editions of this textbook has been the emphasis on business applications and decision making. This feature is expanded even more in the eighth edition. Many new applications are included, and all applications are highlighted in the text with special icons, making them easier for students to locate as they use the text.
- **Quick prep links:** Each chapter begins with a list that provides several ways to get ready for the topics discussed in the chapter.
- **Chapter outcomes:** At the beginning of each chapter, outcomes, which identify what is to be gained from completing the chapter, are linked to the corresponding main headings. Throughout the text, the chapter outcomes are recalled at the appropriate main headings to remind students of the objectives.
- **Step-by-step approach:** This edition provides continued and improved emphasis on providing concise, step-by-step details to reinforce chapter material.
 - **How to do it** lists are provided throughout each chapter to summarize major techniques and reinforce fundamental concepts.
 - **Textual examples** throughout the text provide step-by-step details, enabling students to follow solution techniques easily. Students can then apply the methodology from each example to solve other problems. These examples are provided in addition to the vast array of business applications to give students a real-world, competitive edge.
- **Real-world application:** The chapters and cases feature real companies, actual applications, and rich data sets, allowing the authors to concentrate their efforts on addressing how students apply this statistical knowledge to the decision-making process.
 - **McDonald's Corporation video cases** —The authors' relationship with McDonald's provides students with real-world statistical data and integrated video case series.
 - **Chapter cases** —Cases provided in nearly every chapter are designed to give students the opportunity to apply statistical tools. Each case challenges students to define a problem, determine the appropriate tool to use, apply it, and then write a summary report.
- **Special review sections:** For Chapters 1 to 3 and Chapters 8 to 12, special review sections provide a summary and review of the key issues and statistical techniques. Highly effective flow diagrams help students sort out which statistical technique is appropriate to use in a given problem or exercise. These flow diagrams serve as a mini-decision support system that takes the emphasis off memorization and encourages students to seek a

higher level of understanding and learning. Integrative questions and exercises ask students to demonstrate their comprehension of the topics covered in these sections.

- **Problems and exercises:** This edition includes an extensive revision of exercise sections, featuring more than 250 new problems. The exercise sets are broken down into three categories for ease of use and assignment purposes:
 1. **Skill Development**—These problems help students build and expand upon statistical methods learned in the chapter.
 2. **Business Applications**—These problems involve realistic situations in which students apply decision-making techniques.
 3. **Computer Applications**—In addition to the problems that may be worked out manually, many problems have associated data files and can be solved using Excel, Minitab, or other statistical software.
- **Virtual office hours:** The authors appear in three- to five-minute video clips in which they work examples taken directly from the book. Now students can watch and listen to the instructor walk through an example and obtain even greater clarity with respect to how the example is worked and how the results are interpreted.
- **Computer integration:** The text seamlessly integrates computer applications with textual examples and figures, always focusing on interpreting the output. The goal is for students to be able to know which tools to use, how to apply the tools, and how to analyze their results for making decisions.
 - **Minitab 14** is featured, with associated instructions.
 - **Microsoft Excel 2007** integration instructs students in how to use the Excel 2007 user interface for statistical applications.
 - **PHStat2** is a specially developed Excel add-in package that is compatible with the Excel 2007 release. It performs a number of statistical features not included with Excel. The added functions and procedures are useful in the study and application of business statistics. When installed, PHStat2 attaches itself to the Excel menu bar, providing users with a pull-down menu of topics that supplement the Data Analysis add-in tools in Microsoft Excel.

PHStat2 uses a set of simple and consistent dialog boxes that allow students to specify values and options for almost 50 tools included in the software. PHStat2 produces Excel worksheets organized into areas for input data, intermediate calculations, and the results of analyses. Unlike with some competitors' add-ins, most of these worksheets contain live formulas that allow students to engage immediately in further "what-if" explorations of the data. (Where applicable, these worksheets contain special cell tints that distinguish the cells that contain user-modifiable input values from the cells containing the results, making "what-if" analysis even easier.) Completing the package is an excellent online help system.

MyStatLab

- **MyStatLab** is a proven book-specific online homework and assessment tool that provides a rich and flexible set of course materials, featuring free-response exercises that are algorithmically generated for unlimited practice and mastery. Students can also use a variety of online tools to independently improve their understanding and performance in the course. Instructors can use MyStatLab's homework and test manager to select and assign their own online exercises and import TestGen tests for added flexibility.

Student Resources

Student Solutions Manual

The Student Solutions Manual contains worked-out solutions to odd-numbered problems in the text. It displays the detailed process that students should use to work through the problems. The manual also provides interpretation of the answers and serves as a valuable learning tool for students.



MyStatLab™

Part of the MyMathLab® and MathXL® product family, MyStatLab™ is a text-specific, easily customizable online course that integrates interactive multimedia instruction with textbook content. MyStatLab gives you the tools you need to deliver all or a portion of your course online, whether your students are in a lab setting or working from home.

- **Interactive tutorial exercises:** A comprehensive set of exercises—correlated to your textbook at the objective level—are algorithmically generated for unlimited practice and mastery. Most exercises are free-response exercises and provide guided solutions, sample problems, and learning aids for extra help at point-of-use.
- **Personalized study plan:** When a student completes a test or quiz in MyStatLab, the program generates a personalized study plan for that student, indicating which topics have been mastered and linking students directly to tutorial exercises for topics they need to study and retest.
- **Multimedia learning aids:** Students can use online learning aids, such as video lectures, animations, and a complete multimedia textbook, to help independently improve their understanding and performance.
- **Statistics tools:** MyStatLab includes built-in tools for statistics, including statistical software called StatCrunch. Students also have access to statistics animations and applets that illustrate key ideas for the course. For those who use technology in their course, technology manual PDFs are included.
- **StatCrunch:** This powerful online tool provides an interactive environment for doing statistics. You can use StatCrunch for both numerical and graphical data analysis, taking advantage of interactive graphics to help you see the connection between objects selected in a graph and the underlying data. In MyStatLab, the data sets from your textbook are preloaded into StatCrunch. StatCrunch is also available as a tool from the online homework and practice exercises in MyStatLab and in MathXL for Statistics. Also available is Statcrunch.com, Web-based software that allows students to perform complex statistical analysis in a simple manner.
- **Pearson Tutor Center (www.pearson tutorservices.com):** Access to the Pearson Tutor Center is automatically included with MyStatLab. The Tutor Center is staffed by qualified mathematics instructors who provide textbook-specific tutoring for students via toll-free phone, fax, e-mail, and interactive Web sessions.

MyStatLab is powered by CourseCompass™, Pearson Education's online teaching and learning environment, and by MathXL®, an online homework, tutorial, and assessment system. For more information about MyStatLab, visit www.mystatlab.com.

Student Videos

Student videos—located at MyStatLab only—feature McDonald's video cases and the virtual office hours videos.

Student Companion Web Site

The Companion Web Site, www.pearsonhighered.com/groebner, contains valuable online resources for both students and professors, including:

- **Online chapter—Introduction to Decision Analysis:** This chapter discusses the analytic methods used to deal with the wide variety of decision situations a student might encounter.
- **Data files:** The text provides an extensive number of data files for examples, cases, and exercises. These files are also located at MyStatLab.
- **Excel and Minitab tutorials:** Customized PowerPoint tutorials for both Minitab and Excel use data sets from text examples. Separate tutorials for Excel 2003 and Excel 2007 are provided. Students who need additional instruction in Excel or Minitab can access the menu-driven tutorial, which shows exactly the steps needed to replicate all computer examples in the text. These tutorials are also located at MyStatLab.
- **Excel simulations:** Several interactive simulations illustrate key statistical topics and allow students to do “what-if” scenarios. These simulations are also located at MyStatLab.

- **PHStat:** PHStat is a collection of statistical tools that enhance the capabilities of Excel and assist students in learning the concepts of statistics; published by Pearson Education. This tool is also located at MyStatLab.
- **Online study guide:** This guide contains practice or homework quizzes consisting of multiple-choice, true/false, and essay questions that effectively review textual material. It is located on the Companion Web site only.

Instructor Resources

- **Instructor Resource Center:** The Instructor Resource Center contains the electronic files for the complete Instructor's Solutions Manual, the Test Item File, and Lecture PowerPoint presentations (www.pearsonhighered.com/groebner).
- **Register, Redeem, Login:** At www.pearsonhighered.com/irc, instructors can access a variety of print, media, and presentation resources that are available with this text in downloadable, digital format. For most texts, resources are also available for course management platforms such as Blackboard, WebCT, and Course Compass.
- **It gets better:** Once you register, you will not have additional forms to fill out or multiple usernames and passwords to remember to access new titles and/or editions. As a registered faculty member, you can log in directly to download resource files and receive immediate access and instructions for installing course management content to your campus server.
- **Need help?** Our dedicated technical support team is ready to assist instructors with questions about the media supplements that accompany this text. Visit <http://247.prenhall.com/> for answers to frequently asked questions and toll-free user support phone numbers. The supplements are available to adopting instructors. Detailed descriptions are provided on the Instructor Resource Center.

Instructor's Solutions Manual

The Instructor's Solutions Manual contains worked-out solutions to all the problems and cases in the text.

Lecture PowerPoint Presentations

A PowerPoint presentation, created by Angela Mitchell of Wilmington College of Ohio, is available for each chapter. The PowerPoint slides provide instructors with individual lecture outlines to accompany the text. The slides include many of the figures and tables from the text. Instructors can use these lecture notes as is or can easily modify the notes to reflect specific presentation needs.

Test Item File

The Test Item File, by Tariq Mughal of The University of Utah, contains a variety of true/false, multiple-choice, and short-answer questions for each chapter.

TestGen

The computerized TestGen package allows instructors to customize, save, and generate classroom tests. The test program permits instructors to edit, add, or delete questions from the test bank; edit existing graphics and create new graphics; analyze test results; and organize a database of test and student results. This software allows for extensive flexibility and ease of use. It provides many options for organizing and displaying tests, along with search and sort features. The software and the test banks can be downloaded from the Instructor Resource Center, at www.pearsonhighered.com/groebner.



MyStatLab

- **MathXL® for Statistics:** This powerful online homework, tutorial, and assessment system accompanies Pearson Education textbooks in statistics. With MathXL for Statistics, instructors can create, edit, and assign online homework and tests, using algorithmically

generated exercises correlated at the objective level to the textbook. They can also create and assign their own online exercises and import TestGen tests for added flexibility. All student work is tracked in MathXL's online gradebook. Students can take chapter tests in MathXL and receive personalized study plans based on their test results. The study plan diagnoses weaknesses and links students directly to tutorial exercises for the objectives they need to study and retest. Students can also access supplemental animations and video clips directly from selected exercises. MathXL for Statistics is available to qualified adopters. For more information, visit www.mathxl.com or contact your sales representative.

- **MyStatLab™:** Part of the MyMathLab® and MathXL® product family, MyStatLab™ is a text-specific, easily customizable online course that integrates interactive multimedia instruction with textbook content. MyStatLab gives you the tools you need to deliver all or a portion of your course online, whether your students are in a lab setting or working from home.
- **Assessment Manager:** An easy-to-use assessment manager lets instructors create online homework, quizzes, and tests that are automatically graded and correlated directly to the textbook. Assignments can be created using a mix of questions from the MyStatLab exercise bank, instructor-created custom exercises, and/or TestGen test items.
- **Gradebook:** Designed specifically for mathematics and statistics, the MyStatLab gradebook automatically tracks students' results and gives you control over how to calculate final grades. You can also add offline (paper-and-pencil) grades to the gradebook.
- **Math Exercise Builder:** You can use the MathXL Exercise Builder to create static and algorithmic exercises for your online assignments. A library of sample exercises provides an easy starting point for creating questions, and you can also create questions from scratch.

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Publishing this eighth edition of *Business Statistics: A Decision-Making Approach* has been a team effort involving the contributions of many people. At the risk of overlooking someone, we express our sincere appreciation to the many key contributors. Throughout the two years we have worked on this revision, many of our colleagues from colleges and universities around the country have taken time from their busy schedules to provide valuable input and suggestions for improvement. We would like to thank the following people:

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