Contents

Sample preface

Sample preface

Sample preface

Preface

For a very long time, algebra has been viewed as an essential ingredient in a person's education. And for certain community college students, such as STEM majors, this is definitely true. But recently, some instructors have begun to question whether the traditional algebra sequence best serves all students. Is it the ideal preparation for a career in political science? How about psychology? Social science? Probably not.

In addition to evaluating the long-range benefits of algebra, we should also assess the short-range ones. For some non-STEM majors, the only transferable math course they need to take is statistics. But is the traditional algebra sequence the best preparation for statistics? Without question, statistics students need to have a solid understanding of certain algebra concepts. But one would be hard-pressed to argue that factoring polynomials, completing the square, and solving complicated rational equations are the most important concepts to learn before embarking on a statistics course sequence.

It is not only the *content* of the traditional algebra sequence that is misaligned with statistics. It is also the *nature* of the activities. In algebra, much attention is devoted to manipulating symbols. Statistics focuses on analyzing situations, comparing measurements, and interpreting the meaning of concepts and results. Because the nature of the activities is so different, it is not surprising that many students enter introductory statistics unprepared.

A Pathway to Introductory Statistics is meant to serve non-STEM community college students better than a traditional algebra sequence. In particular, its main goals are to

- Enhance students' ability to think statistically: analyze, compare, and interpret.
- Address descriptive statistics, including the normal distribution and regression.
- Empower students to discern good and bad practices of statistics.
- Equip students with the algebra essential for success in introductory statistics.
- Inspire students with exciting situations that are relevant to their careers.
- Foster the use of technology to enhance, rather than replace, critical thinking.
- Provide collaborative explorations in which students experience the joy of discovery.

NEW TO THE SECOND EDITION

Students will benefit from the following changes to the second edition of *A Pathway to Introductory Statistics*:

- **MyLab Math Exercises:** The number of exercises in MyLab Math has been increased. This was the number one request made by reviewers.
- **Logarithms and Systems of Linear Equations:** To support departments that want to prepare students for liberal arts mathematics courses, as well as statistics, chapters (11 and 12) on logarithms and systems of linear equations are now available online in MyLab Math or at pearsonhighered.com/mathstatsresources.
- **Workbook:** The author has written a new workbook that contains hundreds of affective domain and prestatistics activities. The workbook provides great support for collaborative learning, which research has shown is vital to students' conceptual and problem-solving development. It will be especially helpful for teaching corequisite courses.
- **Group Explorations:** Some explorations have been revised so that they are more open-ended, allowing for greater productive struggle and creative problem solving. Central themes such as center and variation now have greater emphasis.
- **Non-Time-Series Data Sets:** There is tension between providing time-series data and non-time-series data for regression. Time-series data tend to be more lively and easier to input into technology because they often consist of fewer values.

Non-time-series data sets tend to challenge students more (in a good way), provide greater complexity due to possibly having multiple data pairs sharing the same value of the explanatory variable, and better prepare students for statistics because statistics courses tend to include more non-time-series data. The percentage of non-time-series data has been increased for these latter reasons. The author has performed quite a bit of research to find interesting non-time-series data.

- **Data Sets with Multiple Columns:** To better approximate realistic data sets, the percentage of data sets with multiple columns has been increased in Chapters 6–10. This also challenges students to determine which columns they should work with.
- **Augmented Data Sets:** To make the data sets as current and relevant as possible, hundreds of data sets in examples and exercises have been augmented to include observations for recent years.
- **New Data Sets:** Hundreds of data sets in examples and exercises have been replaced with more compelling and contemporary topics such as immigration, trust in the mass media, and health care plans that cover transgender-related services.
- **Statistics versus Parameters:** Statistics students struggle to keep straight symbols and concepts for statistics and parameters. As each measure is introduced, the symbols and concepts for it are compared with previously addressed measures.
- **Statistical Emphasis:** In Chapters 1, 7, and 8, arithmetic and algebra concepts are introduced and developed with a greater statistical emphasis.
- **Complex Fractions:** Many statistics formulas involve complex fractions, so the skills of simplifying complex fractions and evaluating expressions with complex fractions have been added to Sections 1.3 and 1.7, respectively.
- **Percent Change:** Statistics requires facility in comparing values. One of those skills involves computing percent change, which has been added to Section 1.6.
- **Two Samples:** Exercises that involve two samples (or populations) have been added to Chapter 4 so that students can have more practice comparing a measure for two groups of data.
- **Empirical Rule:** To better prepare students for computing normal-curve probabilities in Section 5.5, exercises that require more intricate use of the Empirical Rule have been added to Section 5.1.
- **Discrete Random Variables:** To better prepare students for the concept binomial distribution in a statistics course, a section (5.4) on discrete random variables, including the compelling and fun concept of expected value, has been added. Of all possible concepts that could have been added, this was the top request by reviewers.
- **Residuals:** In Chapter 6 of the first edition, error was defined to be the predicted value minus the observed value, but in Chapter 9, residual was defined to be the observed value minus the predicted value. To provide consistency, error calculations have been replaced with residual calculations in Chapters 6–8. This also allows students to acclimate to residuals for several chapters before having to grapple with computing and interpreting sums of squared residuals in Chapters 9 and 10.
- $\boldsymbol{y = a + bx}$ **Form:** In Chapters 7–10, the form $y = mx + b$ has been replaced with the form $y = a + bx$, which is the form typically used in statistics courses.
- **Summation Notation:** More varied forms of summation notation have been added to Section 8.4.

CONTINUED FROM THE FIRST EDITION

A Meaningful, Alternative Path This text contains the key concepts of descriptive statistics: experimental design, statistical diagrams, measures of center and spread, probability, the normal distribution, and regression. Teaching these topics along with the necessary algebra would certainly prepare students for an introductory statistics course better than the traditional algebra sequence. But to present the statistics concepts twice in the same manner—first in a *Pathway* course and again in an introductory statistics course—falls

short of the sequence's highest potential. Teaching a concept from two perspectives rather than one provides students with a richer and broader learning experience.

But how can statistics be presented in a meaningful way that is different from its presentation in traditional statistics courses? There are actually many paths, but to discover the trailheads we must determine the foundational concepts with which statistics students struggle. Certainly one such concept is the normal curve, which lays the foundation for inferential statistics. How many introductory statistics students understand why the area of a region under the normal curve is equal to a probability? How many introductory statistics students understand how probability rules connect with finding such an area? And how many of them see that proportions, percentiles, and probabilities are closely related and understand why? Most instructors would agree, far too few.

What is compelling is that all three of these issues can be wonderfully addressed with one topic that is given short shrift in most, if not all, traditional statistics courses: density histograms. Because a normal curve can be viewed as a model that approximates a density histogram, students who have a firm grasp of density histograms can also gain a solid understanding of the three issues.

Many instructors' first reaction to this path is that density histograms are too difficult for students to comprehend. Actually, because density histograms are composed of rectangles, it is quite easy for students to compute areas and relate them to proportions, percentiles, and probabilities. *Pathway* takes full advantage of this by having students problem solve with rectangles in Chapter 1, construct and interpret density histograms in Chapter 3, reflect on how measures of center and spread are connected to density histograms in Chapter 4, and apply probability rules when working with density histograms in Chapter 5. After completing Chapters 1–5, the great majority of students will not only have a strong footing with the three issues mentioned earlier but also with related concepts such as probability and measures of center and spread.

Two Approaches: Acceleration versus Replacing Intermediate Algebra In terms of sequencing courses, departments will use this text in one of two ways.

Some departments plan to accelerate their non-STEM students through their math programs by replacing elementary and intermediate algebra with *Pathway*. Some of these faculty feel that the traditional algebra sequence is an unnecessary obstacle for students whose careers will not depend on a significant portion of the sequence. Others feel that presenting algebra from a statistical perspective will engage students at a higher level and be more relevant to their careers.

And then some departments plan to use *Pathway* as an alternative to intermediate algebra. This means that their non-STEM students will first take elementary algebra and then enhance their knowledge of algebra by experiencing it from a statistical perspective. This will not only broaden students' understanding of algebra but may allow some departments to put greater emphasis on statistics because their students will have seen the necessary algebra once before.

The Big Picture When the big picture is presented, students will have a map that tells them where the course's path is headed and how concepts connect. Once students have revisited many arithmetic concepts and a few simple algebra concepts in Chapter 1, they are ready for an overview of statistics in Chapter 2, which explores both good and bad experimental design. Unlike many statistics textbooks that then drop this crucial topic in subsequent chapters on descriptive statistics, *Pathway* encourages students to reflect on issues such as sampling error and sampling bias throughout the rest of the course.

At first glance, some reviewers wonder why the content of Chapter 6 was placed before the content of Chapters 7 and 8. After a closer look, they realize that Chapter 6's development of the four characteristics of an association (shape, strength, direction, and outliers) provides the big picture for the rest of this book. In fact, the four characteristics are further developed in a myriad of ways in subsequent chapters. A significant additional benefit to this organization is that Chapter 6 does not involve algebra. So, departments who want to heavily emphasize statistics can address all of Chapters 2–6 and, time permitting, pick and choose algebra topics from Chapters 7–12.

Sample preface

Compelling Modeling Reviewers have praised the modeling in this text because the data sets are current, authentic, and compelling. And although a homework section's modeling exercises emphasize the concepts addressed in the section, investigations prompted by the "story" of an authentic situation are also embraced. It is in part due to these excursions "off the path" that make the modeling exercises come alive.

Judiciously Selected Algebra Topics Some reviewers feel that this book contains too much algebra. Others think that the amount of algebra is just right. What is interesting is that almost all reviewers believe that for the most part, the only algebra that should be included are the concepts needed in an introductory statistics course. This suggests that instructors teach introductory statistics in different ways. For example, some instructors solve inequalities to derive confidence intervals. Others provide a more intuitive explanation. Some instructors solve equations to derive error formulas. Again, others get the idea across intuitively. And some do both.

With one possible exception, every algebra topic included in this text will be of service to *some* instructors who teach introductory statistics.

The one possible exception is the inclusion of functions. Although functions operate behind the scenes of introductory statistics courses, most textbooks do not make much, if any, use of function notation, language, and concepts. Nonetheless, keeping in mind that some departments will allow students to take *Pathway* instead of the traditional algebra sequence, functions have been included in this book in the hopes that any student who graduates from a community college will have an understanding and appreciation of a concept that is key for so much of mathematics.

Although exponential functions are definitely not included in most introductory statistics courses, they are arguably the second most important type of function (next to linear), and students can gain a significantly better understanding of linear modeling by comparing and contrasting the process with exponential modeling.

Arithmetic and Algebra Seen through a Statistics Lens To better prepare students for Chapters 2–12, some of the arithmetic and simple algebra concepts in Chapter 1 are presented with statistics in mind. For example, Section 1.3 uses fractions as a springboard for proportions and the complement rule. In Section 1.7, students will evaluate statistics expressions and work with areas of rectangles that resemble density histograms.

Likewise, algebra concepts addressed in Chapters 7–12 have been developed from a statistics perspective. For example, rate of change is investigated in Section 7.2 before slope of a line is introduced. Evaluating linear functions in Section 7.4 is parlayed into using linear models to make predictions. And rather than have students work with geometry and science formulas, Section 8.4 requires students to solve probability and statistics formulas for a variable.

Group Explorations Every section of *Pathway* contains at least one exploration that supports student investigation of a concept. Instructors can use explorations as **collaborative activities** during class time or as part of homework assignments. Section Opener Explorations are directed-discovery activities that are meant to be used at the start of class. Near the end of class, teams of students can work on additional explorations meant to deepen their understanding of key concepts. Both types of explorations empower students to become active explorers of mathematics and can open the door to the wonder and beauty of the subject.

Balanced Raw Data and Visual Approach Most statistics textbooks devote an entire chapter to constructing statistical diagrams but then make little use of such diagrams in homework exercises of subsequent chapters. This is unfortunate because students learn best when new concepts are integrated with previously learned ones. For example, to gain a solid understanding of the measures of center and spread, students should analyze some exercises that supply raw data and others that supply statistical diagrams. Throughout this book, homework sections contain a good balance of both types of exercises.

Technology Back in the ’80s, statistics students were expected to construct large numbers of statistical diagrams by hand and perform copious calculations with their calculators. Currently, most statistics instructors believe students should perform a limited number of such activities to get the idea and from then on use technology. The freed-up class time is devoted to enhancing students’ ability to analyze authentic situations, compare measures of center and spread, and interpret concepts and results.

Pathway assumes students have access to technology. With so many packages to choose from, this text’s technological support would be spread thin if it attempted to address all of them. This book focuses on the TI-84 graphing calculator and StatCrunch because the vast majority of community college instructors use one of these two technologies in their introductory statistics courses.

However, in the homework sections, the word *technology* is used rather than specifying the TI-84 or StatCrunch to accommodate classes using other technologies, unless an algebraic command specific to the TI-84 (such as *intersect*) is required.

Appendices A and B: TI-84 and StatCrunch Instructions Appendices A and B contain instructions on how to use a TI-84 and StatCrunch, respectively. A subset of either appendix can serve as a tutorial early in the course. In addition, each time this text introduces a command from either technology, students are referred to a section of the appropriate appendix.

“Data” Icon To support the appropriate use of technology, data sets in exercises and explorations that involve approximately 12 or more data values are available to download at MyLab Math and at the Pearson Downloadable Student Resources for Math and Statistics website: http://www.pearsonhighered.com/mathstatsresources. Such exercises are flagged in the text by the icon DATA.

Big Data It can make a significant, positive impression on students the first time they use technology to construct a histogram of about 100 observations when up to that point they have constructed histograms of only about 20 observations by hand. They are understandably struck by the ease, speed, and accuracy of using technology. But students can gain an even higher level of appreciation by using technology to describe a data set that consists of entries in thousands of rows and multiple columns.

Such an activity is especially relevant in today’s age of big data. Although most *Pathway* students will not perform statistics in their careers, some *will* work with big data. And as part of their general education, all students should have some sense of what statisticians do.

To meet this end, exercises that involve large data sets are sprinkled throughout this text. Identified by the heading “Big Data,” they are positioned at the end of homework sections. Some of these data sets contain thousands of rows and tens of columns.

Hands-On Research Even though every authentic data set in this book provides a source, some students still think that the data is fabricated. Having students find data sets themselves drives home the point that the concepts they are learning can truly be applied to real-life situations. Students begin to see that statistics can be used not only to inform but also to persuade.

To guide students in this process, this text contains exercises that direct students to analyze data found by online searches of blogs, newspapers, magazines, and scientific journals. These exercises are at the end of select homework sections, directly following the heading, “Hands-On Research.”

Hands-On Projects Compelling project assignments are positioned near the end of most chapters. Some of the assignments are similar to the Hands-On Research exercises, but they are more extensive and challenging. These projects reinforce the idea that statistics is a powerful tool that can be used to analyze authentic situations. They are also an excellent opportunity for more in-depth writing assignments.

Some of the projects are about climate change and have been written at a higher reading level than the rest of this text to give students a sense of what it is like to perform research. Students will find that by carefully reading (and possibly rereading) the background information, they can comprehend the information and apply concepts they have learned in the course to make meaningful estimates about this compelling, current, and authentic situation.

Level of Difficulty As was discussed earlier, some departments plan on using *Pathway* to accelerate non-STEM students through their math program. This is a worthy goal, provided it is done well. But some instructors have collapsed the notion of acceleration with making the course easier. The line of reasoning is that if certain students would not succeed in a traditional algebra course, then those students would not succeed in an alternative course that is just as challenging. This logic does not hold up because the nature of the two courses can differ greatly. We should not rob students of the knowledge and self-esteem that result from diligent study.

Furthermore, employers in search of college graduates certainly want a college degree to mean that students have succeeded at courses that are just as demanding as those in the past.

It is for these reasons that this text has been written to challenge students as much as they are challenged in traditional algebra courses. This is primarily achieved in two ways. First, exercises and projects require the interpretation of concepts and results, which causes significant growing pains in most students. Second, many exercises contain at least one part (often out of five parts) that challenges students to apply concepts in new ways.

Warnings Throughout this text, the word WARNING in the margins flags paragraphs that describe common student misconceptions and the correct meanings or applications of concepts.

Tips for Success Many sections close with practical study tips to help students succeed in the course. A complete list of these tips is included in the Index.

GETTING IN TOUCH

I would love to hear from you and would greatly appreciate receiving your comments regarding *Pathway*. If you have any questions, please ask them, and I will respond.

Jay Lehmann
MathNerdJay@aol.com

Sample preface

*Get the **Most** Out of* MyLab Math

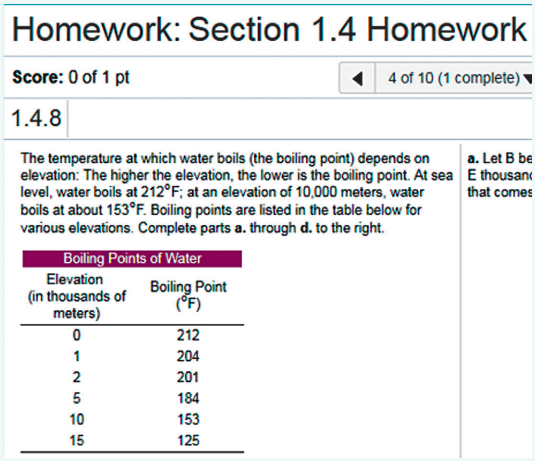
Pearson MyLab

MyLab Math for A PATHWAY TO INTRODUCTORY STATISTICS, 2ND EDITION, by JAY LEHMANN

(access code required)

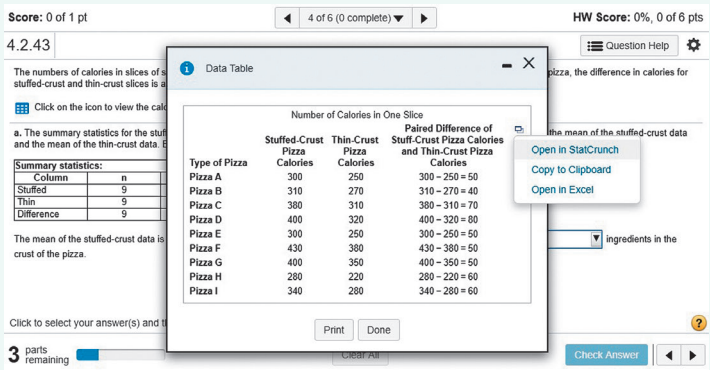
Jay Lehmann's *A Pathway to Introductory Statistics* offers market-leading content written by an author-educator, tightly integrated with the #1 choice in digital learning - MyLab Math. MyLab Math courses can be tailored to the needs of instructors and students, while weaving the author's voice and unique approach into all elements of the course.

Take advantage of the following resources to get the most out of your MyLab Math course.



Updated! MyLab Math coverage of **exercises from the text** has been expanded in this revision, offering instructors more options when creating assignments. Many of the exercises entail data which has been augmented or updated to be as current as possible. New! Select exercises now retain their authentic data sets, even when regenerating algorithmically, so that students don't sacrifice working with real data when doing homework exercises with different values.

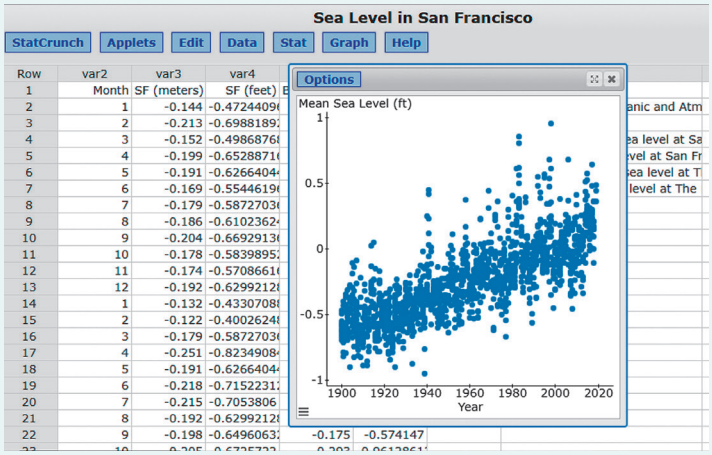
Data sets in exercises and explorations that involve approximately 12 or more data values are available to download in MyLab Math to support the appropriate use of technology. These exercises are ideal for using technology, like StatCrunch or Microsoft Excel, to analyze the data and synthesize concepts.

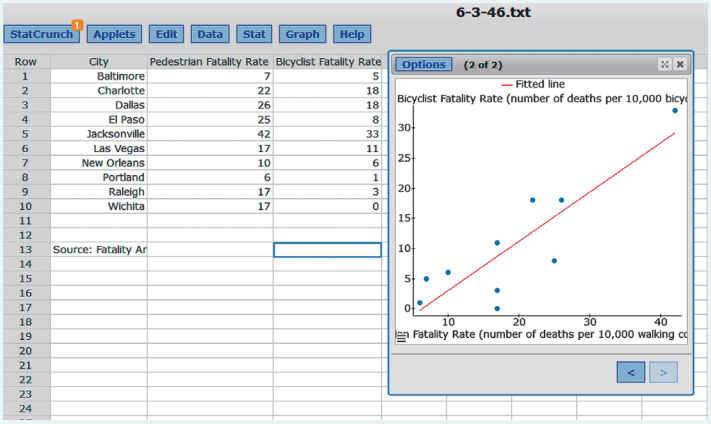


pearson.com/mylab/math

Sample preface

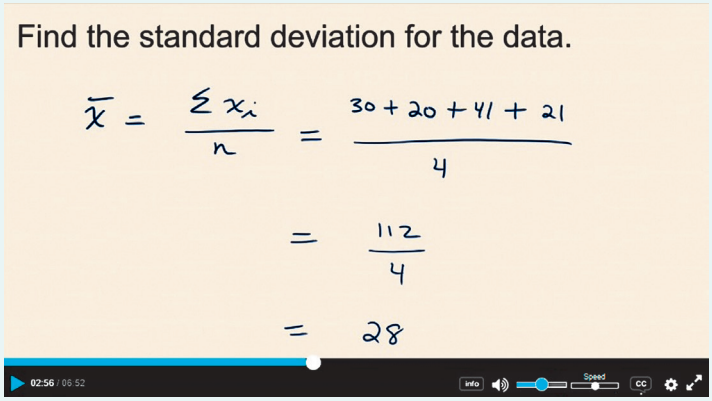
Big data sets, sprinkled throughout the text and noted with "Big Data," contain hundreds of rows of data to give students a hands-on opportunity to work with large, realistic data. In today's age of "Big Data," it can be compelling for students to see how technology can efficiently and accurately help when working with large data sets.





StatCrunch is a powerful web-based statistical software that allows users to collect, crunch, and communicate with data. Integrated into this MyLab course, StatCrunch can be used to analyze data, understand statistical concepts, and get students comfortable with statistical software early.

Instructional videos provide students with extra help for objectives from the textbook. Students can get support on topics and examples anytime, anywhere. Able to be played on any device, all videos are closed captioned.



Sample preface

Resources for Success

Pearson MyLab

Instructor Resources

The following instructor resources are available to download from the Instructor Resource Center at **www.pearson.com**, *or in your MyLab Math course.*

Instructor's Resource Manual

This manual, written by the author, contains suggestions for pacing the course and creating homework assignments. It discusses how to incorporate technology and how to structure project assignments. The manual also contains section-by-section suggestions for presenting lectures and for undertaking the explorations in the text.

PowerPoints

These fully editable lecture slides include definitions, key concepts, and examples for use in a lecture setting. Accessible versions of these PowerPoints are also available.

Instructor's Solutions Manual

This manual includes complete solutions to the even-numbered exercises in the homework sections of the text.

TestGen

TestGen enables instructors to build, edit, print, and administer tests by using a computerized bank of questions developed to cover all the objectives of the text. TestGen is algorithmically based, allowing instructors to create multiple, but equivalent, versions of the same question or test with the click of a button. Instructors can also modify test-bank questions or add new questions. Tests can be printed or administered online. Download the software and this title's test bank from pearson.com.

Student Resources

Video Series

The video program provides students with extra help for objectives of the text. Videos highlight key examples and exercises from the text to facilitate student understanding.

NEW! Workbook

The author has written a new workbook that contains hundreds of affective domain and prestatistics activities. The workbook provides great support for collaborative learning, which research has shown is vital to students' conceptual and problem-solving development. It will be especially helpful for teaching corequisite courses.

Student's Solutions Manual

This manual contains the complete solutions to the odd-numbered exercises in the Homework sections of the text. The Student Solutions Manual (ISBN 9780136553984) is available electronically in MyLab Math.

Acknowledgments

You might think that revising a textbook is a lot easier than writing a first edition, and maybe it is for many textbooks, but due to augmenting or replacing hundreds of data sets and fine-tuning pedagogy in just as many instances, I've put in a year's worth of 12-hour workdays juggling teaching and writing. An author lacks even a smidgen of life balance, and no one knows that better than Keri, my wife, who has wholeheartedly supported me every step of the way, enduring my incessant whining whenever I emerged from my writing cave. I'll never be able to repay her generosity of tolerance, gratitude, and warmth.

At a time when publishers must think twice about producing a print textbook, I will be forever grateful to Director of Product Management Chris Hoag for envisioning the potential of this textbook meeting the needs of so many students.

Displaying only my name on the cover is a disservice to the team of talented people who keyboarded, copy edited, proofread, accuracy checked, and designed art for my manuscript. I am deeply indebted to Product Manager Karen Montgomery, who assembled this fabulous team and granted me a long leash to capture my vision.

My deepest thanks to Pearson Project Manager Tamela Ambush, who ambushed every crisis with an elegant solution for many editions of this textbook and my algebra series. I can only hope she stays in the business as long as I do.

Thanks also to Integra Project Manager Kim Fletcher for her lightning-fast e-mail replies and fastidious attention to a myriad of concerns, both large and small. In the textbook industry, unattended details can snowball to time-intensive challenges.

Although statistics is precise, its pedagogy can be cloudy and circuitous. Without the tireless support of feedback from Jon Freedman, Ken Brown, Lena Feinman, Yvette Butterworth, and Jim Gilmore, I'd be half as confident of my work. Thanks also to Mark Mavis and Cheryl Gregory for their support.

And timeless thanks to my very first editor, Joe Will, who taught me the craft of writing and coined the phrase "model breakdown," which has populated my textbooks and inspired other textbook authors to use as well.

The quality of a textbook is only as good at its reviewer feedback. And *Pathway* received incredible reviews from a large number of passionate instructors, who often went beyond what was asked, ensuring that this edition would not only meet the needs of students at their campuses but at other colleges across the country. Deepest thanks goes to these fantastic reviewers:

Kate Acks, *Maui College*
Tigran Alikhanyan, *Harbor College*
Ken Anderson, *Chemeketa Community College*
Sasha Anderson, *Fresno City College*
Alvina Atkinson, *Georgia Gwinnett College*
Jannette Avery, *Monroe Community College*
Wayne Barber, *Chemeketa Community College*
Rosanne B. Benn, *Prince George's Community College*
Jack Bennett, *Ventura College*
Elena Bogardus, *Camden Community College*
Tony Bower, *St. Philip's College*
Joe Brenkert, *Front Range Community College*
Ronnie Brown, *University of Baltimore*
Jayalakshmi Casukhela, *Ohio State University at Lima*
Steven Cheng, *Quinsigamond CC*
Shawn Clift, *Eastern Kentucky University*
Michael Combs, *Bunker Hill Community College*
Victoria Dominguez, *Citrus College*

Eden Donahou, *Seminole State College of Florida*
Steve Dostal, *College of the Desert*
Cynthia Ellis, *Indiana University–Purdue University Fort Wayne*
Mary Ann Esteban, *Kapiolani Community College*
Nancy Fees, *Northwest College*
Jon Freedman, *Skyline College*
David French, *Tidewater Community College*
Kim Ghiselin, *State College of Florida*
Dave Gilbert, *Santa Barbara City College*
Eric Gilbertsen, *Montana State University, Billings*
Andrew Gillette, *University of Arizona*
Ryan Girard, *Kauai Community College*
Lydia Gonzalez, *Rio Honda College*
Lisa Green, *Middle Tennessee University*
Cheryl Gregory, *College of San Mateo*
Ryan Grossman, *Ivy Tech Community College of Indiana*
Edward Ham, *Bakersfield College*
Miriam Harris-Botzum, *Lehigh Carbon Community College*
Whitney Hastings, *Jacksonville College*
Christy Hediger, *Lehigh Carbon Community College*
Bobbie Hill, *Coastal Bend College*
Carol Howald, *Howard Community College*
Steven Hal Huntsman, *City College of San Francisco*
Laura Iossi, *Broward College*
Erin Irwin, *Rio Honda College*
Sarah Isaksen, *University of Detroit Mercy*
Marilyn Jacobi, *Gateway Community College*
Carolyn James, *University of Portland*
Yvette Janecek, Blinn College, *Brenham Campus*
Christopher Jett, *University of West Georgia*
Jonathan Kalk, *Kauai Community College*
Brian Karasek, *South Mountain Community College*
Cameron Kishel, *Columbus State Community College*
Alex Kolesnik, *Ventura College*
Lynne Kowski, *Raritan Valley Community College*
Kathryn Kozak, *Coconino Community College*
Julie Labbiento, *Lehigh Carbon Community College*
I-Shen Lai, *Santa Monica College*
Kee Lam, *Los Angeles City College*
Marcia Lambert, *Pitt Community College*
Mary Margarita Legner, *Riverside City College*
Comelia McKenna, *University of Baltimore*
Deb Lehman, *Columbia College*
Edith Lester, *Volunteer State Community College*
LaRonda Lowery, *Robeson College*
Christine Mac, *Front Range Community College*
Doug Mace, *Kirtland Community College*
Jason Malozzi, *Lehigh Carbon Community College*
Gayathri Manikandan, *El Camino College, Compton Community Educational Center*
Stacy Martig, *St. Cloud State University*
Nancy Matthews, *University of Oklahoma*
Sue McBride, *John Tyler Community College*
Judy McFarland, *Seminole State College of Florida*
Teresa McFarland, *Owensboro Community and Technical College*
Kim McHale, *Heartland Community College*
Andrea Nemeth, *California State University, Northridge*
Francis Kyei Nkansah, *Bunker Hill Community College*
Sue Norris, *Grinnell College*
Tom Ogimachi, *Moorpark College*
Diane Pruett, *Austin Community College*
Brendan P. Purdy, *Moorpark College*
Sheide Rahmani, *Santa Monica College*
Pat Rhodes, *Treasure Valley Community College*
Pat Riley, *Hopkinsville Community College*
Ruth Roberman, *South University*
Lara Rosenberger, *Reading Area Community College*
Nicole Saporito, *Luzerne County Community College*
Ned Schillow, *Lehigh Carbon Community College*
Saliha Sha, *Ventura College*
Renee Shipp, *Jefferson Davis Community College*
Jenny Shotwell, *Central Texas College*
Joseph Spadaro, *Gateway Community College*
Brad Stetson, *Schoolcraft College*
Chairsty Stewart, *MSU Billings*
Marie St. James, *St. Clair County Community College*
Anna Tivy, *Ventura Community College*
Steve Tuckey, *Jackson Community College*
Susan Twigg, *Wor-Wic Community College*
Mary Williams, *Roosevelt University*
Robin Williams, *Palomar College*
Kevin Windsor, *Los Angeles City College*
Cynthia Vanderlaan, *Indiana University–Purdue University Fort Wayne*
Cathleen Zucco-Teveloff, *Rider University*