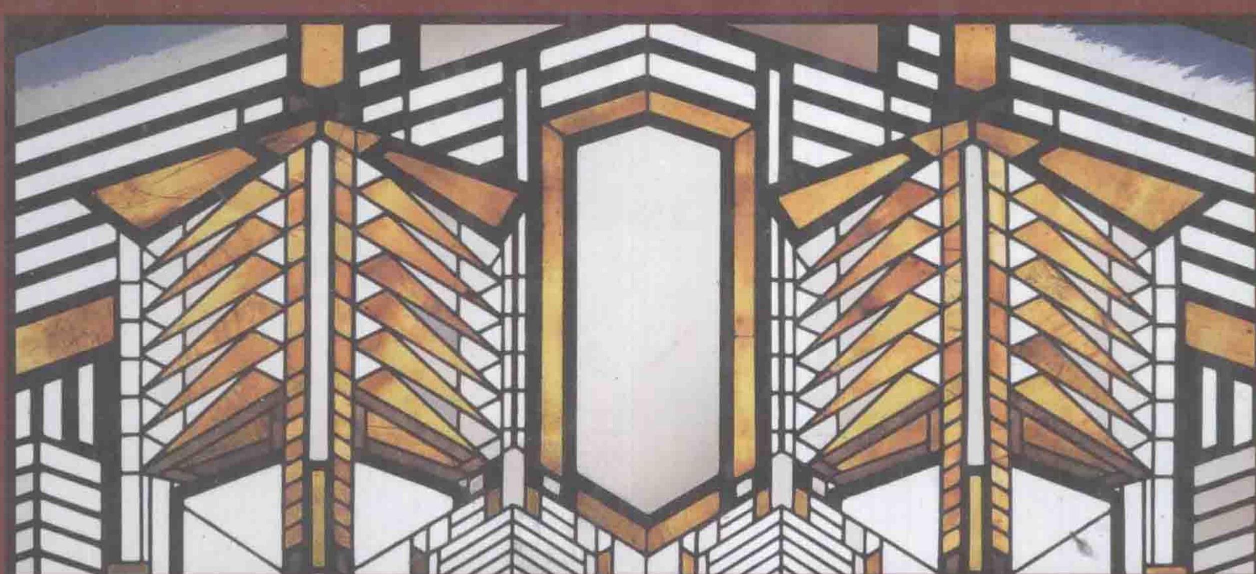
PRINCIPLES OF ECONOMICS

SECOND EDITION



ROBERT H. FRANK
BEN S. BERNANKE

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SECOND EDITION

ROBERT H. FRANK
Cornell University

BEN S. BERNANKE
Princeton University

McGraw-Hill Irwin

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Cover: Leaded glass window designed by Frank Lloyd Wright for the Dave Thomas House, Springfield, Illinois, circa 1904, 61 cm x 97.5 cm

Photo: Doug Carr, Springfield, Illinois

Design of book: The images in the design of this book are based on elements of the architecture of Frank Lloyd Wright, specifically from the leaded glass windows seen in many of his houses. Wright's design was rooted in nature and based on simplicity and harmony. His windows use elemental geometry to abstract natural forms, complementing and framing the natural world outside. This concept of seeing the world through an elegantly structured framework ties in nicely to the idea of framing one's view of the world through the window of economics.

The typeface used for some of the elements was taken from the Arts and Crafts movement. The typeface, as well as the color palette, bring in the feeling of that movement in a way that complements the geometric elements of Wright's windows. The Economic Naturalist icon is visually set apart from the more geometric elements but is a representation of the inspirational force behind all of Wright's work.

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DEDICATION

For Ellen

R. H. F.

For Anna

B. S. B.

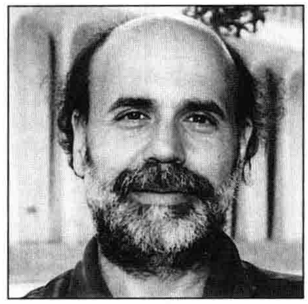
ABOUT THE AUTHORS

ROBERT H. FRANK

Professor Frank received his B.S. from Georgia Tech in 1966, then taught math and science for two years as a Peace Corps volunteer in rural Nepal. He received his M.A. in statistics and his Ph.D. in economics in 1972 from the University of California at Berkeley. He is the H. J. Louis Professor of Economics at the Johnson Graduate School of Management at Cornell University, where he has taught since 1972. During a leave of absence from Cornell he served as chief economist for the Civil Aeronautics Board (1978–1980), a Fellow at the Center for Advanced Study in the Behavioral Sciences (1992–1993), and Professor of American Civilization at l'École des Hautes Études en Sciences Sociales in Paris (2000–2001).

Professor Frank is the author of a best-selling intermediate economics textbook—*Microeconomics and Behavior,* Fifth Edition (McGraw-Hill/Irwin, 2003). He has published on a variety of subjects, including price and wage discrimination, public utility pricing, the measurement of unemployment spell lengths, and the distributional consequences of direct foreign investment. His research has focused on rivalry and cooperation in economic and social behavior. His books on these themes include *Choosing the Right Pond: Human Behavior and the Quest for Status* (Oxford University Press, 1985) and *Passions Within Reason: The Strategic Role of the Emotions* (W.W. Norton, 1988). He and Philip Cook are coauthors of *The Winner-Take-All Society* (The Free Press, 1995), which received a Critic's Choice Award and appeared on both the *New York Times* Notable Books list and *Business Week* Ten Best list for 1995. His most recent general-interest publication, *Luxury Fever* (The Free Press, 1999), was named to the Knight-Ridder Best Books list for 1999. He was awarded an Andrew W. Mellon Professorship (1987–1990), a Kenan Enterprise Award (1993), and a Merrill Scholars Program Outstanding Educator Citation (1991). Professor Frank's introductory microeconomics course has graduated more than 6,000 enthusiastic economic naturalists over the years.

BEN S. BERNANKE



Professor Bernanke received his B.A. in economics from Harvard University in 1975 and his Ph.D. in economics from MIT in 1979. He taught at the Stanford Graduate School of Business from 1979 to 1985 and moved to Princeton University in 1985, where he is the Howard Harrison and Gabrielle Snyder Beck Professor of Economics and Public Affairs, and where he served as Chairman of the Economics Department. He has consulted for the Board of Governors of the European Central Bank and other central banks, and he served on a U.S. State Department Committee that advises the Israeli government on economic policy. He is a member of the American Academy of Arts and Sciences, Fellow of the Econometrics Society, and a Research Associate for the National Bureau of Economic Research. He has been a visiting scholar at the Federal Reserve System in Boston, Philadelphia, and New York. And in August 2002, he was named to the Board of Governors of the Federal Reserve.

Professor Bernanke's intermediate textbook, with Andrew Abel, *Macroeconomics,* Fourth Edition (Addison-Wesley, 2001), is a best seller in its field. He has written more than 50 scholarly publications in macroeconomics, macroeconomic history, and finance. He has done significant research on the causes of the Great Depression, the role of financial markets and institutions in the business cycle, and measuring the effects of monetary policy on the economy. His two most recent books, both published by Princeton University Press, are *Inflation Targeting: Lessons from the International Experience* (with coauthors) and *Essays on the Great Depression.* He is the editor of the *American Economic Review* and has been the coeditor of the *NBER Macroeconomics Annual* and of *Economics Letters.* He has served as associate editor for the *Journal of Financial Intermediation,* the *Quarterly Journal of Economics,* the *Journal of Money, Credit, and Banking,* and the *Review of Economics and Statistics.* Professor Bernanke has taught principles of economics at both Stanford and Princeton.

PREFACE

In recent years, innovative texts in mathematics, science, foreign languages, and other fields have achieved dramatic pedagogical gains by abandoning the traditional encyclopedic approach in favor of attempting to teach a short list of core principles in depth. The enthusiastic reactions of users of the first edition of this book confirm that this less-is-more approach affords similar gains in introductory economics. Although recent editions of a few other texts have paid lip service to this new approach, ours is by consensus the most carefully thought out and well-executed text in this mold. Avoiding excessive reliance on formal mathematical derivations, it presents concepts intuitively through examples drawn from familiar contexts. It relies throughout on a well-articulated short list of core principles, which it reinforces repeatedly by illustrating and applying each in numerous contexts. It asks students periodically to apply these principles to answer related questions, exercises, and problems.

The text encourages students to become "economic naturalists," people who employ basic economic principles to understand and explain what they observe in the world around them. An economic naturalist understands, for example, that infant safety seats are required in cars but not in airplanes because the marginal cost of space to accommodate these seats is typically zero in cars but often hundreds of dollars in airplanes. Such examples engage students' interest while teaching them to see each feature of their economic landscape as the reflection of an implicit or explicit cost-benefit calculation.

Our second edition has incorporated several significant pedagogical improvements. Based on extensive reviewer feedback, it offers (1) even more streamlined coverage of the cost-benefit approach in the introductory chapter; (2) exercises that are more closely tied to the examples; (3) for important or difficult concepts, expanded narrative explanations that are more accessible to average students; and (4) expanded coverage of several key topics (see below). The result is a revision that is even more clutter-free, engaging, and pedagogically effective than its predecessor.

FEATURES

- **Core Principles Emphasized:** A few core principles do most of the work in economics. By focusing almost exclusively on these principles, the text ensures that students leave the course with a deep mastery of them. In contrast, traditional encyclopedic texts so overwhelm students with detail that they often leave the course with little useful working knowledge at all.
- **Economic Naturalism Introduced in Micro:** Our ultimate goal is to produce "economic naturalists"—people who see each human action as the result of an implicit or explicit cost-benefit calculation. The economic naturalist sees mundane details of ordinary existence in a new light and becomes actively engaged in the attempt to understand them. Some representative examples:
  - Why do auto manufacturers no longer make cars without heaters?
  - Why are whales, but not chickens, threatened with extinction?
  - Why do movie theaters give student discounts on the price of admission but not on the price of popcorn?

- **Economic Naturalism Expanded in Macro:** This feature, arguably more applied here than in microeconomics, still involves an explicit or implicit cost-benefit calculation. In macro the economic naturalist might ask the following:
  - Why was the United States able to experience rapid growth and low inflation in the latter part of the 1990s?
  - What caused the 2001 recession in the United States?
  - How did the Fed react to recession and the terror attacks in 2001?
- **Active Learning Stressed:** The only way to learn to hit an overhead smash in tennis or to speak a foreign language is through repeated practice. The same is true for learning economics. Accordingly, we consistently introduce new ideas in the context of simple examples and then follow them with applications showing how they work in familiar settings. At frequent intervals, we pose exercises that both test and reinforce the understanding of these ideas. The end-of-chapter questions and problems are carefully crafted to help students internalize and extend core concepts. Experience with our first edition confirms that our text really does prepare students to apply basic economic principles to solve economic puzzles drawn from the real world.
- **Modern Microeconomics:** Economic surplus, introduced in Chapter 1 and applied repeatedly thereafter, is more fully developed here than in any other text. This concept underlies the argument for economic efficiency as an important social goal. Rather than speak of trade-offs between efficiency and other goals, we stress that maximizing economic surplus facilitates the achievement of *all* goals. *Common decision pitfalls* identified by 2002 Nobel Laureate Daniel Kahneman and others—such as the tendency to ignore implicit costs, the tendency not to ignore sunk costs, and the tendency to confuse average and marginal costs and benefits—are introduced early in Chapter 1. The book devotes a chapter to the economics of information, making available in intuitively accessible form key insights that earned the 2001 Nobel Prize in economics for George Akerlof, Joseph Stiglitz, and Michael Spence.
- **Modern Macroeconomics:** Recent developments have renewed interest in cyclical fluctuations without challenging the importance of such long-run issues as growth, productivity, the evolution of real wages, and capital formation. Our treatment of these issues is organized as follows:
  - A five-chapter treatment of long-run issues prior to an analysis of short-run fluctuations, followed by a modern treatment of short-term fluctuations and stabilization policy, emphasizing the important distinction between short- and long-run behavior of the economy.
  - Consistent with both media reporting and recent research on the central bank reaction function, we treat the interest rate rather than the money supply as the primary instrument of Fed policy.
  - The analysis of aggregate demand and aggregate supply relates output to inflation, rather than to the price level, sidestepping the necessity of a separate derivation of the link between the output gap and inflation.
  - This book places a heavy emphasis on globalization, starting with an analysis of its effects on real wage inequality and progressing to such issues as the benefits of trade, the causes and effects of protectionism, the role of capital flows in domestic capital formation, the link between exchange rates and monetary policy, and the sources of speculative attacks on currencies.

- **Web site:** The site was developed by Scott Simkins of North Carolina A & T State University, an expert in the growing field of economics education on the World Wide Web. The ambitious web site contains a host of features that will enhance the principles classroom, including dynamic graphs, e-mail updates, microeconomic experiments, current news articles, information about the text, an eLearning session, and more.

IMPROVEMENTS

- **Introductory Material Shortened and Refined:** The material from the first edition's Chapters 1 and 2 has been reworked and condensed into one chapter in an effort to launch these important concepts as clearly and efficiently as possible. From the very beginning, the focus is on how rational people make choices among alternative courses of action.
- **Separate Chapter on Elasticity Added:** The material covered in this chapter (Chapter 4) was covered in parts of two separate chapters in the first edition (Chapters 5 and 6). The new combined chapter streamlines the presentation by making use of definitions and formulas common to both the supply and demand sides. The chapter also adds several new applications and graphical summaries of key relationships.
- **Cost Curve Coverage Added:** Responding to reviewer feedback, we added an introduction to average total cost and average variable cost curves in Chapter 6. To make the presentation as simple and uncluttered as possible, no single diagram ever portrays more than three cost curves at once, and most employ only two. While this treatment remains faithful to our belief that full-blown coverage of production functions and cost curves is ill-advised at the principles level, it also provides substantially greater teaching flexibility. For example, it enables instructors to portray profits and losses graphically (Chapters 6, 8, and 9) and to discuss a firm's shutdown condition in diagrammatic terms (Chapter 6). It also facilitates an enriched discussion of the invisible hand process by which profit and loss signals drive resource allocation in competitive markets (Chapter 8).
- **Strategic Theory Accessible:** Chapter 10, "Thinking Strategically," includes many examples of how simple elements of game theory can be used not only to illuminate the interactions among oligopolists and other imperfectly competitive firms, but also to shed light on common patterns of human social interaction. This chapter
  - Opens with an account of how the producers of a Robert DeNiro film lost several hundred thousand dollars by shooting most of the film before negotiating with the singer who was slated to appear in the final scene.
  - Introduces the important Nash Equilibrium concept through a series of intuitively accessible examples.
  - Includes an extended discussion of the important prisoner's dilemma and strategies that have been developed for solving it.
  - Deals with ultimatum bargaining games and unselfish human behavior.
- **More Streamlined Discussion of Labor Markets and Income Redistribution:** Chapter 13 now contains material from the chapters on "Labor Markets" (13) and "Income Redistribution" (16) in the first edition. The new chapter

is half the combined length of the earlier chapters, accomplished in part by eliminating examples, in part by trimming topic coverage. Sections on monopsony and comparable worth from the original Chapter 13 and sections on utilitarianism, tax policy and occupational choice, progressive consumption taxation, and redistribution and cost-benefit analysis from the original Chapter 16 have been omitted.

- **Early Chapter on International Trade:** The first edition had a brief section on international trade at the end of Chapter 3 on comparative advantage. This material has been expanded to an entire chapter (16) on trade. Because international trade involves important micro principles and policy issues, students will benefit greatly from this expanded coverage earlier in the book.
- **Long-Run Coverage Expanded:** Chapter 23 of the first edition dealt with financial markets, money, and the Fed; capital flows was dealt with as part of a later, international chapter. Because of the importance of these topics, we expanded the material into two long-run chapters in this edition. These chapters are now titled "Money, Prices, and the Federal Reserve" (23) and "Financial Markets and International Capital Flows" (24).
- **Short-Run Coverage More Accessible:** Economic concepts are more streamlined, providing a smoother flow of economic reasoning for students. There are new Economic Naturalists (ENs) that help students better understand how policymakers react to changes in economic conditions. These ENs allow students to bridge the gap between theory and practice more effectively. There is a complete graphical/verbal discussion of the key economic concepts in each chapter for instructors and students who find this material most accessible in a nonmathematical presentation. But for those instructors who wish to reinforce specific concepts with a more formal mathematical approach, chapter appendixes provide a full algebraic treatment of the corresponding chapter concepts.

  Students are provided with a clear, consistent framework for understanding modern economic theory and policymaking. They systematically develop a powerful model for understanding a wide range of short-run issues that are relevant in today's economy. Updated examples in each chapter are both topical and effective at illustrating key points. Each chapter provides students with examples and hands-on exercises to promote practice with key concepts and the workings of the short-run model. This hands-on approach to learning helps students better understand how economic policy affects interest rates, inflation, unemployment, exchange rates, and output and gets students more engaged in the learning process. Chapter-by-chapter benefits include the following:

  - The development of the Keynesian cross in Chapter 26 places more emphasis on graphs and verbal explanations, with an optional mathematical treatment in the appendix. The new presentation makes it easier for students to understand the basic economic concepts underlying the short-run model.
  - Chapter 27 continues to focus on the Federal Reserve's use of the interest rate as the primary policy tool, allowing students to more easily relate economic concepts to real-world macroeconomic policy decisions reported in the news.
  - The *AD-AS* model is developed systematically in Chapter 28 (based on concepts introduced in Chapters 26 and 27) using a graphical/verbal approach, allowing students to better understand the link among economic

theory, real-world macroeconomic behavior, and macroeconomic policymaking. Again, an algebraic treatment of material in this chapter is provided in the appendix.

- **Modern International Finance:** Chapter 29 focuses on a particularly important variable in international economics, the exchange rate. The exchange rate plays a key role in determining patterns of trade. Moreover, the type of exchange rate systems a country adopts has important implications for the effectiveness of its macroeconomic policies.

THE CHALLENGE

The world is a more competitive place now than it was when we started teaching in the 1970s. In arena after arena, business as usual is no longer good enough. Baseball players used to drink beer and go fishing during the off-season, but they now lift weights and ride exercise bicycles. Assistant professors used to work on their houses on weekends, but the current crop can be found most weekends at the office. The competition for student attention has grown similarly more intense. There are many tempting courses in the typical college curriculum, and even more tempting diversions outside the classroom. Students are freer than ever to pick and choose. Yet many of us seem to operate under the illusion that most freshmen arrive with a burning desire to become economics majors. And many of us do not yet seem to have recognized that students' cognitive abilities and powers of concentration are scarce resources. To hold our ground we must become not only more selective in what we teach, but also more effective as advocates for our discipline. We must persuade students that we offer something of value.

A well-conceived and well-executed introductory course in economics can teach our students more about society and human behavior in a single term than virtually any other course in the university. This course can and should be an intellectual adventure of the first order. Not all students who take the kind of course we envisioned when writing this book will go on to become economics majors of course. But many will, and even those who do not will leave with a sense of admiration for the power of economic ideas.

A salesperson knows that he or she often gets only one chance to make a good first impression on a potential customer. Analogously, the principles course is often our only shot at persuading students to appreciate the value of economics. By trying to teach them everything we know—rather than teaching them the most important things we know—we too often squander this opportunity.

SUPPLEMENTS

We continue to believe that an ancillary package is most useful if each element in it is part of a well-considered whole, and here, as with the first edition, we've tried hard to coordinate all the elements. We have also worked hard to improve each element within the package—for example, the PowerPoints are more extensive and more sophisticated, the Instructor's Manual now provides more help than before, the Test Banks are larger and the questions more closely tied to the textbook, the Study Guide sends students to the web site more often, the web site itself is more extensive and more accessible, and the DiscoverEcon Tutorial Software is more student-friendly than ever and now allows instructors e-submission capability and easy syllabus linking. Finally, we listened to you about what, in the first edition, needed work and tried to make it better.

FOR THE INSTRUCTOR

Instructor's Manual: Prepared by Margaret Ray at Mary Washington College, this manual will be extremely useful for all teachers, but especially for those new to the job. In addition to such general topics as Using the Web Site, Economic Education Resources, Innovative Ideas, and Tips for Teaching, there is, for each chapter, An Overview, An Outline, Core Principles, Important Concepts, Teaching Objectives, Web Site Applications, In-Class Activities, More Economic Naturalists, Answers to Textbook Problems, Sample Homework, and a Sample Reading Quiz.

Test Banks: Prepared by Sheryl Ball at Virginia Polytechnic Institute (micro) and Nancy Jianakoplos at Colorado State University (macro), each manual contains nearly 3,000 multiple-choice questions categorized by Teaching Objective (from the Study Guide); Learning Level (knowledge, comprehension, application, analysis); Type (graph, calculation, word problem); and Source (textbook, Study Guide, Web, unique).

Computerized Test Banks: The print test banks are also available in the latest Diploma test-generating software—micro and macro, ensuring maximum flexibility in test preparation, including the reconfiguring of graphing exercises. This Brownstone program is the gold standard of testing programs. It is available in both a Windows and Macintosh format.

PowerPoints: Prepared by Steve Smith and Jeff Caldwell at Rose State, these slides—micro and macro—contain all of the illustrations in the textbook, along with a detailed, chapter-by-chapter review of the important ideas presented in the textbook. These teachers have done PowerPoints for many books at both the principles and intermediate level.

Overhead Transparencies: These more than 280, four-color acetates contain all the illustrations presented in the textbook. They are available in micro and macro packages.

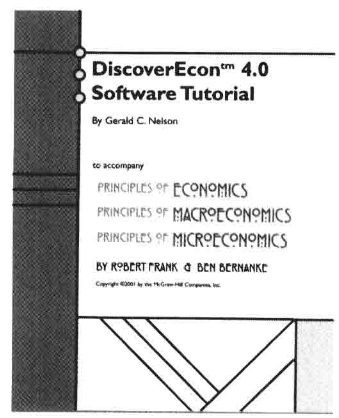
Instructor's CD-ROM: This remarkable Windows software program, which contains the complete Instructor's Manual, Computerized Test Banks, PowerPoints, and a full set of lecture notes for principles of microeconomics (prepared by Bob Frank for his successful introductory course at Cornell University) and macroeconomics (prepared by Scott Simkins at North Carolina A&T State University) also allows the instructor to create presentations from any of the materials on the CD or from additional material that can be imported.

Online Learning Center (www.mhhe.com/economics/frankbernanke2): For teachers there are, among other things, an online newsletter called "The Teaching Exchange"; the Instructor's Manual; the PowerPoints; Economics on the Web, an annotated set of URLs/links to sites of interest to economists; a graphing library; a description of what's on the student site; and some Optional Material from the book.

FOR THE STUDENT

Study Guide: Written by Jack Mogab and Bruce McClung at Southwest Texas State University, this book provides the following elements for each chapter: a Pretest; a Learning Objective Grid; a Key Point Review with Learning Tips; some Self-Tests (Key Term Matching, Multiple Choice, Problems) with answers; and an extension of the guide to the web site, where students may practice with graphing.

Online Learning Center (www.mhhe.com/economics/frankbernanke2): For students there are such useful and exciting features for the book as a whole as Interpreting the News—articles and summaries of relevant articles with analysis and discussion questions; a Math Tutor—help for those whose math skills are rusty; e-mail Updates—periodic sending of information/study tips; the Glossary from the textbook; and Economics on the Web—annotated URLs useful for economics students. Additionally, for each chapter there is an Electronic Learning Session that opens with a brief recap of the chapter, is then followed by a test with answers and analysis; and is followed by a set of study sessions based on Economic Naturalist Exercises; Graphing Exercises; PowerPoints; and Key Terms; and which is finally followed by a second quiz, with answers and analysis.



DiscoverEcon Software: Created by Gerald Nelson of the University of Illinois, DiscoverEcon is the best-selling academic economics software available. This widely class-tested software is Windows-based and text-specific. The software is available either in a standard CD format or via the Web by using a unique student pass code packaged free with each new book. Features contained in every chapter include

Multiple-choice test questions: The user chooses the number of questions in the test; the software selects randomly from the question bank for the chapter.

Chapter Review Questions and Problems: All end-of-chapter materials are included in the software. Students can enter answers, with graphs where needed, and send them to their instructors.

Match the terms: This exercise challenges the student to match randomly selected key glossary terms with their appropriate glossary explanation.

In addition, you will find

New ensubmission capability: Instructors may now set up their courses for ensubmission so that all exercise results for each student can be viewed and downloaded to other Windows applications (Web-based version only). In the web version, essay answers can be graded, with comments, and returned to students.

Easy syllabus linking: For those instructors using a course management system, specific "pages" in DiscoverEcon can be linked to specific parts of the course web site. This makes navigation and therefore self-assessment easier than ever for both student and instructor.

The opportunity to experiment with graphs, those seen in the classroom and the textbook: The software includes movies (graphs are drawn step-by-step with explanatory text appearing as the graph is constructed), interactive graphs (students change a parameter and see how the graph changes), and interactive exercises (students interpret a graph based on concepts presented) in the text and in the software.

BusinessWeek Edition: Your students can subscribe to 15 weeks of *BusinessWeek* for a specially priced rate. Students will receive a pass code card shrink-wrapped with their new text. The card directs students to a web site where they enter the code and then gain access to *BusinessWeek*'s registration page to enter address info and set up their print and online subscription as well.

Wall Street Journal Edition: Your students can subscribe to the *Wall Street Journal* for 15 weeks at a specially priced rate. Students will receive a "How to Use the *WSJ*" handbook plus a pass code card shrink-wrapped with the text. The card directs students to a web site where they enter the code and then gain access to the *WSJ* registration page to enter address information and set up their print and online subscription, and also set up their subscription to Dow Jones Interactive online for the 15-week period.

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