




THIRD EDITION

MACROECONOMICS

IN MODULES

Paul Krugman • Robin Wells

Applications in Macroeconomics in Modules

SECTION	SECTION-OPENING STORIES
1: Basic Economic Concepts	1: Any Given Sunday
2: Supply and Demand	2: Blue Jean Blues
3: Macroeconomic Measurement	3: The New #2
4: Unemployment and Inflation	4: A Very British Dilemma
5: Long-Run Economic Growth	5: Tall Tales
6: Savings, Investment Spending, and the Financial System	6: Funds for Facebook
7: Income and Expenditure	7: From Boom to Bust
8: Aggregate Demand and Aggregate Supply	8: Shocks to the System
9: Fiscal Policy	9: To Stimulate or Not to Stimulate?
10: Money, Banking, and the Federal Reserve System	10: Funny Money
11: Monetary Policy	11: Chairman of the Board
12: Policy Responses to Unemployment and Inflation	12: Bringing a Suitcase to the Bank
13: Open-Economy Macroeconomics	13: Switzerland Doesn’t Want Your Money
14: Macroeconomics: Events and Ideas	14: A Tale of Two Slumps

Green type indicates global example

	ECONOMICS IN ACTION	BUSINESS CASES
1:	Fending Off Depression ■ Rich Nation, Poor Nation	Efficiency, Opportunity Cost, and the Logic of Lean Production
2:	Beating the Traffic ■ Only Creatures Small and Pampered ■ The Rice Run of 2008 ■ Price Floors and School Lunches ■ The Clams of the Jersey Shore ■ Skill and Comparative Advantage	Li & Fung: From Guangzhou to You
3:	Defining Recessions and Expansions ■ Comparing Recessions ■ Creating the National Accounts ■ Our Imputed Lives ■ Miracle in Venezuela ■ GDP and the Meaning of Life	Getting a Jump on GDP
4:	Failure to Launch ■ Natural Unemployment Around the OECD ■ Israel's Experience with Inflation ■ Indexing to the CPI	A Monster Slump
5:	India Takes Off ■ The Information Technology Paradox ■ The Brazilian Breadbasket ■ Are Economies Converging?	Big Box Boom
6:	America's Low Savings ■ Fifty Years of Fluctuations in U.S. Interest Rates ■ How Big Is That Jackpot, Anyway? ■ The Great American Housing Bubble	
7:	The Multiplier and the Great Depression ■ Interest Rates and the U.S. Housing Boom ■ Inventories and the End of a Recession	Making It Through in Muskegon
8:	Moving Along the Aggregate Demand Curve, 1979–1980 ■ Prices and Output During the Great Depression ■ Supply Shocks Versus Demand Shocks in Practice	United in Pain
9:	What Was in the Recovery Act? ■ Multipliers and the Obama Stimulus ■ Europe's Search for a Fiscal Rule	Priming the Pumps
10:	The History of the Dollar ■ It's a Wonderful Banking System ■ Regulation After the 2008 Crisis	The Perfect Gift: Cash or a Gift Card?
11:	Who Gets Interest on the Fed's Assets? ■ A Yen for Cash ■ The Fed Reverses Course ■ What the Fed Wants, the Fed Gets ■ International Evidence of Monetary Neutrality	PIMCO Bets on Cheap Money
12:	What Caused Zimbabwe's Inflation? ■ The Great Disinflation of the 1980s ■ The Deflation Scare of 2010 ■ Lights Out at Lehman	Licenses to Print Money
13:	GDP, GNP, and the Current Account ■ Burgernomics ■ China Pegs the Yuan	War of the Earthmovers
14:	Supply-Side Economics ■ An Irish Role Model?	

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Princeton University

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Leckman, Federal Reserve. *Janet Yellen:* Drew Angerer/Bloomberg via Getty Images. *Hands with money:* Shutterstock. *Money graph:* Jezper/Shutterstock. **p. 377** *Ben Bernanke:* Britt Leckman/Official Federal Reserve Photo. **p. 412** *Portrait:* Luis Alvarez/Getty Images. *Printing U.S. dollar banknotes:* Thinkstock. *Tokyo street scene:* Tom Bonaventure/ Photographer's Choice RF /Getty Images. *Businessman with umbrella:* Igor Stevanovic/Shutterstock. **p. 413** *Zimbabwe money:* Trevor Kelly/Shutterstock. **p. 452** *Portrait:* Tim Kitchen/Getty Images. *Map and coins:* © Sadik Demiroz/Thinkstock. *Currency exchange board:* © Image Source Plus/Alamy. *Travelex Currency Exchange:* Greg Balfour Evans/Alamy. *Stacks of British currency:* Millennium Images/SuperStock. **p. 453** *Exterior of Swiss bank:* © Prisma Bildagentur AG/Alamy. **p. 488** *Portrait:* Justin Horrocks/Getty Images. *Children carrying picket signs:* © Minnesota Historical Society/CORBIS. *Man holding sign:* Thomas W. Elliott. *President Obama with senior advisors:* White House Photo/Alamy. **p. 489** *Roosevelt signing Social Security bill:* Universal History Archive/Getty Images.

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ABOUT THE AUTHORS

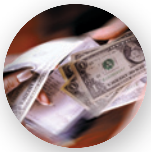
Paul Krugman, recipient of the 2008 Nobel Memorial Prize in Economic Sciences, is Professor of Economics at Princeton University, where he regularly teaches the principles course. In the summer of 2015 he will join the faculty of the Graduate Center, City University of New York, and become a distinguished scholar at the Graduate Center's Luxembourg Income Study Center. Krugman received his BA from Yale and his PhD from MIT. Prior to his current position, he taught at Yale, Stanford, and MIT. He also spent a year on the staff of the Council of Economic Advisers in 1982–1983. His research is mainly in the area of international trade, where he is one of the founders of the "new trade theory," which focuses on increasing returns and imperfect competition. He also works in international finance, with a concentration in currency crises. In 1991, Krugman received the American Economic Association's John Bates Clark medal. In addition to his teaching and academic research, Krugman writes extensively for nontechnical audiences. He is a regular op-ed columnist for the *New York Times*. His latest trade books, both best sellers, include *End This Depression Now!,* a look at the recent global financial crisis and recovery, and *The Return of Depression Economics and the Crisis of 2008,* a history of recent economic troubles and their implications for economic policy. His earlier books, *The Conscience of a Liberal, Peddling Prosperity,* and *The Age of Diminished Expectations,* have become modern classics.

Robin Wells was a Lecturer and Researcher in Economics at Princeton University. She received her BA from the University of Chicago and her PhD from the University of California at Berkeley; she then did postdoctoral work at MIT. She has taught at the University of Michigan, the University of Southampton (United Kingdom), Stanford, and MIT. The subject of her teaching and research is the theory of organizations and incentives.

To beginning students everywhere,
which we all were at one time.

BRIEF CONTENTS

CONTENTS




NEED
JOB

PREFACE

"It is not how much empty space there is, but rather how it is used. It is not how much information there is, but rather how effectively it is arranged."

—*Edward R. Tufte*

An Innovative Modular Format

For a long while, we have been hearing from instructors who wanted to use the Krugman/Wells text in their principles course, but needed a less comprehensive version: a book that was shorter overall, with a focus on the essential principles of economics, and with less in the way of theory and analytics. We've responded to these requests, and you are holding the result in your hands.

***Macroeconomics in Modules* is a streamlined textbook that incorporates an innovative format geared toward how students learn today.** Instead of tackling 24 chapters of about 25 to 40 pages each, students encounter 6- to 10-page *modules* designed to be read in a single sitting. What exactly is a module? We think users and reviewers have come up with the best definition. They consistently describe modules as "short, digestible chunks" of text that students actually read. We should also add that shorter does not mean taking shortcuts. Although each module is a short, easy-to-manage reading assignment, each is also informative and thorough, with adequate rigor.

This text includes carefully crafted pedagogy that works within the modular format to enhance the student learning experience. The modular format offers a unique opportunity for structured learning and assessment. Each module concentrates on a specific topic using a learning-objectives approach and then concludes with three types of self-assessment questions: "Check Your Understanding" and multiple-choice questions that allow students to test their comprehension of module content, followed by critical-thinking questions that encourage reflection and analysis. Answers to these questions appear at the end of the book, so students can actually see how well they've mastered concepts.

There is additional opportunity for assessment at the end of each section (a section is a grouping of modules): thoughtful problems that test related concepts across all of the modules in a section, encouraging students to make connections among ideas as well as apply and practice what they've learned.

We've refined the modular structure in this edition to offer even greater flexibility. We've added six new sections to help unpack some of the more module-heavy sections. The result: more focused sections with fewer modules in each. Important topics are contained within their own sections, making it easier for instructors to navigate through the book and assign the topics they want to teach without breaking chapters apart (often done with non-modular texts), which can undermine narrative flow and diminish comprehension.

The Science Behind Modules

We see it for ourselves, we have heard it from reviewers, and the research confirms it: students are reading less, for shorter periods of time, and they continue to struggle with comprehension. So, when we began thinking about the idea of developing a more streamlined principles text, we also thought a lot about the best way to format it.

The modular format, which is popular in other disciplines, appealed to us. It was in keeping with the findings of cognitive psychologists who have demonstrated that comprehension is best attained when material is "chunked" into smaller reading assignments, reinforced with frequent questioning (the "testing effect"), and incentivized by a sense of accomplishment earned from completing discrete reading tasks. These findings are at the heart of the modular format of this text and its pedagogy.

Comments from users confirm the benefits of this new way of presenting economic concepts. Each user reported an almost identical story: students were actually completing their reading assignments, something that was rare when traditional textbook chapters were assigned. Overall, they found students coming to lectures better prepared. And, each of these users couldn't imagine returning to a textbook with a more traditional format.

This result makes intuitive sense. Why wouldn't students prefer to read short modules instead of long chapters? Of course it would enrich the learning experience if students could check their comprehension more frequently, at the end of short modules.

For a closer look at the text's format and feature set, see the walkthrough on pages xxiv–xxxi.

About the Revision

This edition of *Macroeconomics in Modules* represents a major revision. We had three goals in mind as we worked: adding important new content, improving the organization of sections, and updating examples and data to keep the book current and relevant. We even added a new feature.

Decisions about many of the changes were made with the help of feedback from a devoted group of adopters and reviewers—all fans of the modular format who offered us excellent suggestions for how we could make the text an even better match for their principles courses. Here is an overview of the major revisions.

New Coverage of the Keynesian Cross

This was an omission that prompted the most vocal response from instructors and we've remedied it in this edition with **new Module 26, "The Income-Expenditure Model."** The new module offers a detailed look at the aggregate-expenditure model and presents the famous 45-degree diagram for those who cover this material. We worked hard to keep this module focused and free of unnecessary complexity.

New Modules and Organizational Improvements

In addition to the new module on the Keynesian cross, we've included two new modules on topics that mean a lot to us and, that we hope, will allow you to enrich your own teaching. **Module 8, "International Trade,"** has been included for those who wish to delve deeper into trade topics than is possible with the coverage of comparative advantage and trade presented in Module 3.

Module 42, "Crises and Consequences," offers a unique look at the financial crisis of 2008, examining the aspects of the banking system that allowed the crisis to happen, the reasons why banking crises are so bad for so many, and the role that government and regulation play in crises.

Organizational Improvements We made the following changes in this edition. But for those who prefer to teach using a different order, the sections and modules remain completely flexible.

Many new sections: We've already touched on the benefits of more sections. Those of you familiar with the second edition will notice that we've virtually doubled the number of them, a structural change that alters the look of our table of contents, we think, for the better. Material that had been submerged previously, such as ADAS (Section 8), Fiscal Policy (Section 9), and Money, Banking, and the Fed (Section 10), is now prominent. Some modules have moved to accommodate the new structure, resulting, overall, in a more logical flow of ideas.

New early growth coverage: Following the section on unemployment and inflation is an early, all-new section devoted to economic growth (Section 5). This early coverage allows us to emphasize the idea that economic growth, along with low unemployment and stable inflation, are important policy goals. In addition, early coverage of long-run economic growth in real GDP helps students understand why the business cycle involves fluctuations around an upward trend. And we are now able to highlight the role that the markets and institutions covered next, in Section 6, play in economic growth.

New Feature: Business Case Studies

Now, more than ever, students need a strong understanding of economic principles and their applications to business decisions. To meet this need, virtually every section now concludes with a real-world business case that illustrates how the economic principles just covered play out in the world of entrepreneurs and bottom lines.

The cases are wide-ranging and provide insight into business decision making. They include an examination of how lean production techniques at Boeing and Toyota increased efficiency at both companies and led to a worldwide manufacturing revolution. (Section 1: "Efficiency, Opportunity Cost, and the Logic of Lean Production"). Another case looks at the changing job market during a recession, examined through the lens of companies like Monster Worldwide and its competitors (Section 4: "A Monster Slump"). One of our favorites is the case addressing the role of gift cards in secondary markets and the value of *breakage* when individual consumers fail to pay down their gift cards completely (Section 10: "The Perfect Gift: Cash or a Gift Card?").

Each case concludes with "Questions for Thought" that help students engage more deeply with economic concepts by seeing them applied in actual business situations. A list of the new Business Cases appears on the inside front cover.

Extensive Updates

This edition includes 15 new "Economics in Actions" (formerly called "In Real Life"). Many of those not replaced outright have been updated to include recent developments and research. Virtually every module includes at least one "Economics in Action" feature. In addition, all but two of our section-opening stories are new to this edition, for a grand total of 12 new openers. We have also undertaken a thorough updating of examples, data, and applications.

It is important to us to emphasize currency and to use stories from real life and the news. This makes every revision a work-intensive endeavor, but we believe that currency drives student interest.

A Closer Look at the Table of Contents and Feature Set

The annotated table of contents that follows shows how the modular format works and explains the focus of each section. Although the sections are grouped into building blocks in which conceptual material learned at one stage is built upon and then integrated into the next stage, the coverage is also flexible enough to allow instructors to organize content to best meet their needs.

Following the table of contents is a visual tour of our feature set that clarifies how well the content of this text is supplemented by real-world examples and ample opportunity for practice and review (pages xxiv–xxvii).

Annotated Table of Contents . . . A Closer Look at Content and Format

The text contains 14 sections with two to five modules in each.

An introduction to basic economic principles that will help students develop an understanding of economic modeling and the nature of markets.

Each component of the supply and demand model is covered in its own module, allowing students to master the model incrementally. The section includes a **new module** on international trade.

Introduces macroeconomics and explains how macroeconomic aggregates are measured.

A **new** stand-alone section examining unemployment, how it's measured, and the problems posed by inflation.

NEW TO THIS EDITION Early treatment of long-run growth. The section looks at sources of economic growth and explains why some countries have been more successful than others.

An introduction to the financial system with the background students will need to tackle upcoming topics such as monetary policy and international capital flows.

NEW TO THIS EDITION Coverage of Keynesian cross analysis in **new Module 26.** It is preceded by a look at the logic of the multiplier and determinants of consumer and investment spending.

A thorough treatment of AD–AS focusing on the aggregate price level using the traditional approach to AD–AS, with coverage on the ability of economies to recover in the long run.

The addition of six new section divisions on major topics in macroeconomics, like fiscal policy and monetary policy, means fewer modules in each section and more flexibility.

A **new** stand-alone section devoted to how fiscal policy can be used to manage the ups and downs of the business cycle, with an in-depth look at discretionary fiscal policy and automatic stabilizers.

This section examines the roles of money, money creation, and the structure and role of the Federal Reserve System—including historical background on the evolution of money and monetary institutions.

A **new** stand-alone section examining the use of monetary policy in the face of recession or inflation, with a close look at the Fed's role in driving interest rates and aggregate demand.

This section addresses the causes and consequences of inflation, deflation, and the dangers of disinflation. NEW TO THIS EDITION **Module 42** on financial crises, offering a detailed and up-to-date look at the recent crisis and its aftermath.

Analyzes the special issues raised by an open economy: a weak dollar, foreign accumulation of dollar reserves, and debates about the euro.

A unique overview of the history of macroeconomic thought set in the context of changing policy concerns and current macroeconomic debates.

These appendices offer a helpful review of graphing skills and easy access to select macroeconomic data for reference.

Solutions allow students to independently test their mastery of concepts.

Tools for Learning . . . Getting the Most from This Book

Each section consists of interrelated modules with a consistent set of features and pedagogy. Each module is self-contained giving students discrete reading assignments to complete. Instructors have the freedom to assign only those modules that are important to their course.

MODULE 5 Demand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WHAT YOU WILL LEARN

1 What a competitive market is and how it is described by the supply and demand model

What the demand curve is

The difference between movements along the demand curve and changes in demand

The factors that shift the demand curve

Each module begins with **WHAT YOU WILL LEARN**, a numbered list of learning objectives in an easy-to-review format that alerts students to critical concepts in the pages ahead.

Supply and Demand: A Model of a Competitive Market

Cotton sellers and cotton buyers constitute a *market*—a group of producers and consumers who exchange a good or service for payment. In this section, we'll focus on a particular type of market known as a *competitive market*. Roughly, a **competitive market** is a market in which there are many buyers and sellers of the same good or service. More precisely, the key feature of a competitive market is that no individual's actions have a noticeable effect on the price at which the good or service is sold. It's important to understand, however, that this is not an accurate description of every market.

For example, it's not an accurate description of the market for cola beverages. That's because in the market for cola beverages, Coca-Cola and Pepsi account for such a large proportion of total sales that they are able to influence the price at which cola beverages are bought and sold. But it *is* an accurate description of the market for cotton. The global marketplace for cotton is so huge that even a jeans maker as large as Levi Strauss & Co. accounts for only a tiny fraction of transactions, making it unable to influence the price at which cotton is bought and sold.

It's a little hard to explain why competitive markets are different from other markets until we've seen how a competitive market works. For now, let's just say that it's ...ets. When taking an exam, it's ...r questions. In this book, we're ...etitive markets.

...l described by the **supply and** ...itive, the supply and demand

A **competitive market** is a market in which there are many bu... and sell... ers of the same good or s... of whom can influence th... which the good or servic...

The **supply and deman**... a model of how a compet... works.

KEY TERMS Every key term is defined in the text and then again in the margin, making it easier for students to study and review important vocabulary.

There are ...
- The dem...
- The supp...
- The set o... cause the...
- The mar... quantity...
- The way ... shifts

To explain ... in turn. In th...

The De...

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When the ... higher price ... switching co... linen. In gene... want to buy, ... people want ... purchase.

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The Dem...

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The graph... (For a refresh... vertical axis ... quantity of c... tries in the ta... curve is a gra... the relationsh...

ECONOMICS IN ACTION

WORLD VIEW

BEATING THE TRAFFIC

All big cities have traffic problems, and many local authorities try to discourage driving in the crowded city center. If we think of an auto trip to the city center as a good that people consume, we can use the economics of demand to analyze anti-traffic policies.

One common strategy is to reduce the demand for auto trips by lowering the prices of substitutes. Many metropolitan areas subsidize bus and rail service, hoping to lure commuters out of their cars. An alternative is to raise the price of complements: several major U.S. cities impose high taxes on commercial parking garages and impose short time limits on parking meters, both to raise revenue and to discourage people from driving into the city.

A few major cities—including Singapore, London, Oslo, Stockholm, and Milan—have been willing to adopt a direct and politically controversial approach: reducing congestion by raising the price of driving. Under "congestion pricing" (or "congestion charging" in the United Kingdom), a charge is imposed on cars entering the city center during business hours. Drivers buy passes, which are then debited electronically as they drive by monitoring stations. Compliance is monitored with automatic cameras that photograph license plates.

The current daily cost of driving in London ranges from £8 to £10 (about $13 to $16). And drivers who don't pay and are caught pay a fine of £120 (about $195) for each transgression.

Not surprisingly, studies have shown that after the implementation of congestion pricing, traffic does indeed decrease. In the 1990s, London had some of the worst traffic in Europe. The introduction of its congestion charge in 2003 immediately reduced traffic in the London city center by about 15%, with overall traffic falling by 21% between 2002 and 2006. And there was increased use of substitutes, such as public

Citie... raisi...

GLOBAL STAMPS identify features that are global in focus.

ECONOMICS IN ACTION This feature, which appears in every module, provides a compelling real-life application of major concepts covered in the module. Students experience an immediate payoff when they can apply concepts they've just read about to real phenomena.

Each module concludes with a unique set of **REVIEW QUESTIONS**.

MODULE 5 Review

Solutions appear at the back of the book.

Check Your Understanding

1. Explain whether each of the following events represents (i) a *change in demand* (a *shift of* the demand curve) or (ii) a *change in the quantity demanded* (a *movement* ...e).
   ... that customers are willing to pay ... on rainy days.
   ..., a long-distance telephone ...ered reduced rates on weekends, ...nd calling increased sharply.
   c. People buy more long-stem roses the week of Valentine's Day, even though the prices are higher than at other times during the year.
   d. A sharp rise in the price of gasoline leads many commuters to join carpools in order to reduce their gasoline purchases.

CHECK YOUR UNDERSTANDING review questions allow students to immediately test their understanding of a module. By checking their answers with those found in the back of the book, students will know when they need to reread the module before moving on.

SECTION 2 SUPPLY AND DEMAND

Multiple-Choice Questions

1. Which of the following would increase demand for a normal good? A decrease in
   a. price.
   b. income.
   ... price of a substitute.
   ...sumer taste for a good.
   ... price of a complement.
2. ...ease in the price of butter would most likely ...se the demand for
   ...garine.
   ...els.
   c. jelly.
   d. milk.
   e. syrup.
3. If an increase in income leads to a decrease in demand, the good is
   a. a complement.
   b. a substitute.
   c. inferior.
   d. abnormal.
   e. normal.
4. Which of the following will occur if consumers expect the price of a good to fall in the coming months?
   a. The quantity demanded will rise today.
   b. The quantity demanded will remain the same today.
   c. Demand will increase today.
   d. Demand will decrease today.
   e. No change will occur today.
5. Which of the following will increase the demand for disposable diapers?
   a. a new "baby boom"
   b. concern over the environmental effect of landfills
   c. a decrease in the price of cloth diapers
   d. a move toward earlier potty training of children
   e. a decrease in the price of disposable diapers

MULTIPLE-CHOICE QUESTIONS offer students additional opportunity to practice what they've learned.

Critical-Thinking Question

... correctly labeled graph showing the demand for ... On your graph, illustrate what happens to the de... ...or apples if a new report from the Surgeon General ...at an apple a day really *does* keep the doctor away.

CRITICAL-THINKING QUESTIONS offer students an opportunity to think more deeply about content in the module.

PITFALLS

DEMAND VERSUS QUANTITY DEMANDED

? Consider how the term *demand* is used in the following sentence. Why is the sentence incorrect?

If the price of the good goes up then people will buy less and this will lead to a fall in demand which shifts the demand curve to the left.

> THIS STATEMENT MISTAKES A CHANGE IN QUANTITY DEMANDED FOR A CHANGE IN DEMAND. WHEN DOING ECONOMIC ANALYSIS, IT IS IMPORTANT TO MAKE THE DISTINCTION BETWEEN CHANGES IN *DEMAND*, WHICH MEAN SHIFTS OF THE DEMAND CURVE, AND CHANGES IN *QUANTITY DEMANDED*. When economists say "an increase in demand," they mean a rightward shift of the demand curve, and when they say "a decrease in demand," they mean a leftward shift of the demand curve—that is, when they're being careful. In or...st people, including professional econ...ord *demand* casually. For example, an ...ay "the demand for air travel has dou... fifteen years, partly because of falling ...r she really means that the *quantity de*...ded. The key point to remember is that ...causes a *movement along the demand* ...ift of the demand curve.

...Figure 5.3 for an illustration of a movement ...ve versus a shift of the demand curve. For an ...rence, see pages 38–40.

NEW The **PITFALLS** feature, appearing at the end of select modules, helps students come to a better understanding of commonly misunderstood concepts, using a question-and-answer format.

Solutions to all module-review questions can be found at the back of the book.