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Financial Markets *and* Institutions

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To Ingo Walter: a mentor, coauthor, and friend.

—TONY SAUNDERS

To my parents, Tom and Sue.

—MARCIA MILLON CORNETT

To my beautiful daughter, Oyuma.

—OTGO ERHEMJAMTS

ABOUT THE AUTHORS

Anthony Saunders

Anthony Saunders is the John M. Schiff Professor of Finance and former chair of the Department of Finance at the Stern School of Business at New York University. Professor Saunders received his PhD from the London School of Eco-



Anthony Saunders

nomics and has taught both undergraduate- and graduate-level courses at NYU since 1978. Throughout his academic career, his teaching and research have specialized in financial institutions and international banking. He has

served as a visiting professor all

over the world, including INSEAD, the Stockholm School of Economics, and the University of Melbourne.

Professor Saunders holds or has held positions on the Board of Academic Consultants of the Federal Reserve Board of Governors as well as the Council of Research Advisors for the Federal National Mortgage Association. In addition, Dr. Saunders has acted as a visiting scholar at the Comptroller of the Currency and at the International Monetary Fund. He is editor of the *Journal of Financial Markets, Instruments and Institutions*, as well as the associate editor of a number of other journals. His research has been published in all of the major finance and banking journals and in several books. He has just published a new edition of his textbook, with Dr. Marcia Millon Cornett, *Financial Institutions Management: A Risk Management Approach*, for McGraw Hill (eleventh edition). Professor Saunders was ranked the most prolific author out of more than 5,800 who have published in the seven leading finance academic journals from 1959 to 2008 ("Most Prolific Authors in the Financial Literature, 1959–2008," Jean Heck and Philip Cooley).

Otgontsetseg (Otgo) Erhemjamts

Otgo Erhemjamts is the Dean of the School of Management and Professor of Finance at University of San Francisco. She received her BS and MS degrees in information technology from the Mongolian University of Science and

Technology, her MS degree in economics from the University of Idaho, and her PhD degree in Finance from Georgia State University. Dr. Erhemjamts has written and published articles in the areas of risk management, bank performance, life insurer demutualizations, product

market competition, industry structure, and corporate social responsibility. Her research has appeared in academic journals such as the *Journal of Money, Credit, and Banking*; the *Journal of Banking and Finance*; the *Journal of Risk and Insurance*; and the *Journal of Business Ethics*. Dr. Erhemjamts serves as an Associate Editor for the *Global Finance Journal*. She has taught undergraduate- and graduate-level courses in financial institutions, risk management and insurance, financial markets, investments, equity valuation, and sustainable investing at Georgia State University and Bentley University. Dr. Erhemjamts is a member of the Financial Management Association, the American Finance Association, and the Eastern Finance Association.



Courtesy of Chris San Antonio-Tunis

Marcia Millon Cornett

Marcia Millon Cornett is the Robert A. and Julia E. Dorn Professor of Finance at Bentley University. She received her BS degree in economics from Knox College in Galesburg, Illinois, and her MBA and PhD degrees in finance from Indiana University in Bloomington, Indiana. Dr. Cornett has written and published several articles in the areas of bank performance, bank regulation,



Marcia Cornett

corporate finance, and investments. Articles authored by Dr. Cornett have appeared in such academic journals as the *Journal of Finance*; the *Journal of Money, Credit, and Banking*; the *Journal of Financial Economics*; *Financial Management*; and the *Journal of Banking and Finance*. She was recently

ranked the 124th most published out of more than 17,600 authors and the number five female author in finance literature over the last 50 years. Along with Anthony Saunders, Dr. Cornett has recently completed work on the eleventh edition of *Financial Institutions Management* (McGraw Hill). With Troy A. Adair Jr. (Harvard University) and John Nofsinger (University of Alaska, Anchorage), she has also recently completed work on the sixth edition of *Finance: Applications and Theory* and the sixth edition of *M: Finance* (McGraw

Hill). Professor Cornett serves as an associate editor for the *Journal of Banking and Finance*, the *Journal of Financial Services Research*, *Review of Financial Economics*, *Financial Review*, and *Multi-national Finance Journal*. Dr. Cornett has served as a member of the Board of Directors, the Executive Committee, and the Finance Committee of the SIU Credit Union. She has also taught at Southern Illinois University at Carbondale, the University of Colorado, Boston College, Southern Methodist University, and Boston University.

PREFACE



he last few decades have been dramatic for the financial services industry. In the 1990s and 2000s, boundaries between the traditional industry sectors, such as commercial banking and investment banking, broke down and competition became increasingly global in nature. Many forces contributed to this breakdown in interindustry and intercountry barriers, including financial innovation, technology, taxation, and regulation. Then in 2008–2009, the financial services industry experienced the worst financial crisis since the Great Depression. Even into the mid-2010s, the U.S. and world economies had not recovered from this crisis. Most recently, the COVID-19 pandemic sent shock waves through the world economy and triggered the largest global economic crisis in more than a century. It is in this context that this book is written.

As the economic and competitive environments change, attention to profit and, more than ever, risk become increasingly important. This book offers a unique analysis of the risks faced by investors and savers interacting through both financial institutions and financial markets, as well as strategies that can be adopted for controlling and better managing these risks. Special emphasis is also put on new areas of operations in financial markets and institutions such as asset securitization, off-balance-sheet activities, and globalization of financial services. While maintaining a risk measurement and management framework, *Financial Markets and Institutions* provides a broad application of this important perspective. This book recognizes that domestic and foreign financial markets are becoming increasingly integrated and that financial intermediaries are evolving toward a single financial services industry. The analytical rigor is mathematically accessible to all levels of students, undergraduate and graduate, and is balanced by a comprehensive discussion of the unique environment within which financial markets and institutions operate. Important practical tools such as how to issue and trade financial securities and how to analyze financial statements and loan applications will arm students with the skills necessary to understand and manage financial market and institution risks in this dynamic environment. While descriptive concepts so important to financial management (financial market securities, regulation, industry trends, industry characteristics, etc.) are included in the book, ample analytical techniques are also included as practical tools to help students understand the operation of modern financial markets and institutions.

INTENDED AUDIENCE

Financial Markets and Institutions is aimed at the first course in financial markets and institutions at both the undergraduate and MBA levels. While topics covered in this book are found in more advanced textbooks on financial markets and institutions, the explanations and illustrations are aimed at those with little or no practical or academic experience beyond the introductory-level finance courses. In most chapters, the main relationships are presented by figures, graphs, and simple examples. The more complicated details and technical problems related to in-chapter discussion are provided in appendixes to the chapters (available through McGraw-Hill *Connect* or your course instructor).

ORGANIZATION

Since our focus is on return and risk and the sources of that return and risk in domestic and foreign financial markets and institutions, this book relates ways in which a modern financial manager, saver, and investor can expand return with a managed level of risk to achieve the best, or most favorable, return–risk outcome.

Part 1 provides an introduction to the text and an overview of financial markets and institutions. Chapter 1 defines and introduces the various domestic and foreign financial markets and describes the special functions of FIs. This chapter also takes an analytical look

at how financial markets and institutions benefit today's economy. In Chapter 2, we provide an in-depth look at interest rates. We first look at factors that determine interest rate levels, as well as their past, present, and expected future movements. We then review the concept of time value of money. Chapter 3 then applies these interest rates to security valuation. In Chapter 4, we describe the Federal Reserve System and how monetary policy implemented by the Federal Reserve affects interest rates and, ultimately, the overall economy.

Part 2 of the text presents an overview of the various securities markets. We describe each securities market, its participants, the securities traded in each, the trading process, and how changes in interest rates, inflation, and foreign exchange rates impact a financial manager's decisions to hedge risk. These chapters cover the money markets (Chapter 5), bond markets (Chapter 6), mortgage markets (Chapter 7), stock markets (Chapter 8), foreign exchange markets (Chapter 9), and derivative securities markets (Chapter 10).

Part 3 of the text summarizes the operations of commercial banks. Chapter 11 describes the key characteristics and recent trends in the commercial banking sector. Chapter 12 describes the financial statements of a typical commercial bank and the ratios used to analyze those statements. This chapter also analyzes actual financial statements for representative commercial banks. Chapter 13 provides a comprehensive look at the regulations under which these financial institutions operate and, particularly, the effect of recent changes in regulation.

Part 4 of the text provides an overview describing the key characteristics and regulatory features of the other major sectors of the U.S. financial services industry. We discuss other lending institutions (savings institutions, credit unions, and finance companies) in Chapter 14, insurance companies in Chapter 15, securities firms and investment banks in Chapter 16, investment companies in Chapter 17, pension funds in Chapter 18, and fintech firms in Chapter 19.

Part 5 concludes the text by examining the risks facing a modern FI and FI managers and the various strategies for managing these risks. In Chapter 19, we preview the risk measurement and management chapters in this section with an overview of the risks facing a modern FI. We divide the chapters on risk measurement and management along two lines: measuring and managing risks on the balance sheet, and managing risks off the balance sheet. In Chapter 21, we begin the on-balance-sheet risk measurement and management section by looking at credit risk on individual loans and bonds and how these risks adversely impact an FI's profits and value. The chapter also discusses the lending process, including loans made to households and small, medium-size, and large corporations. Chapter 22 covers liquidity risk in financial institutions. This chapter includes a detailed analysis of the ways in which FIs can insulate themselves from liquidity risk and the key role deposit insurance and other guarantee schemes play in reducing liquidity risk.

In Chapter 23, we investigate the net interest margin as a source of profitability and risk, with a focus on the effects of interest rate risk and the mismatching of asset and liability maturities on FI risk exposure. At the core of FI risk insulation is the size and adequacy of the owner's capital stake, which is also a focus of this chapter.

The management of risk off the balance sheet is examined in Chapter 24. The chapter highlights various new markets and instruments that have emerged to allow FIs to better manage three important types of risk: interest rate risk, foreign exchange risk, and credit risk. These markets and instruments and their strategic use by FIs include forwards, futures, options, and swaps.

Finally, Chapter 25 explores ways of removing credit risk from the loan portfolio through asset sales and securitization.

EVERGREEN

- Content and technology are ever-changing, and it is important that you can keep your course up to date with the latest information and assessments. That's why we want to deliver the most current and relevant content for your course, hassle-free.
- Financial Markets and Institutions is moving to an Evergreen delivery model, which means it has content, tools, and technology that are updated and relevant, with updates

delivered directly to your existing McGraw Hill Connect® course. Engage students and freshen up assignments with up-to-date coverage of select topics and assessments, all without having to switch editions or build a new course.

NEW FEATURES

- Updates on the major changes proposed for the regulation of financial institutions are included where appropriate throughout the book.
- Tables and figures in all chapters have been revised to include the most recently available data.
- Many end-of-chapter problems have been revised or updated.

Chapter Changes

- **Chapter 1**
 - Updated discussions of Brexit process and its aftermath.
 - A brief discussion on the effect of the COVID-19 pandemic on the stock markets.
- **Chapter 2**
 - A brief discussion on how the Fed lowered federal funds rate to almost zero to combat issues from the COVID-19 pandemic.
 - A discussion on how the \$1.9 trillion American Rescue Plan, a massive spending package that was intended to stimulate the economy from the effects of the COVID-19 pandemic, was attributed as one of the major drivers for rising inflation in 2022.
- **Chapter 4**
 - A new IN THE NEWS box on the Fed's policy response to the COVID-19 pandemic
 - A brief discussion on how the Fed raised interest rate six times in 2022 to combat the most rapid inflation in 40 years.
 - A discussion on the Fed's massive purchases of debt securities in response to the COVID-19 pandemic.
- **Chapter 5**
 - A brief discussion on the role of repurchase agreements in the trading of liquidity.
 - A brief discussion on the types of commercial papers.
 - A discussion on money market funds (e.g., government money market funds and prime money market funds), their performance during the COVID-19 crisis, and on why the SEC proposed its third set of money market reforms since 2010 and 2014.
 - A discussion on how the strains in money market in September 2019 affected the repo market and resulted in repo operations by the FRBNY.
- **Chapter 6**
 - A new section on Green, Social, and Sustainability (GSS) bonds, use of proceeds bonds, and sustainability-linked bonds.
- **Chapter 8**
 - An updated figure on S&P 500 performance over 1928–2022 period in logarithmic scale, showing bottoms during each recession.
 - A new section on Sustainable Investing and the most common environmental, social, and governance (ESG) criteria incorporated by money managers and institutional investors.
 - A new section on Global Sustainable Investing, and discussions on the Paris Agreement, the Sustainable Development Goals (SDGs), the Task Force on Climate-Related Financial Disclosures (TCFD), and the United Nations Environment Program Finance Initiative (UNEP FI).

- **Chapter 10**
 - Increased focus on the Secured Overnight Financing Rate (SOFR), instead of LIBOR, as a reference rate.
- **Chapter 11**
 - A discussion on the results of 2021 and 2022 Dodd–Frank Act Stress Tests (DFAST) on commercial banks.
- **Chapter 13**
 - A discussion on the 2018 Economic Growth, Regulatory Relief, and Consumer Protection Act (EGRRCPA), and how it increased the systematically important financial institution (SIFI) threshold from \$50 billion to \$250 billion, exempting midsized banks from “Enhanced Prudential Standards” that included higher risk management requirements and annual stress tests.
 - An updated discussion on shadow banks and size of the shadow banking assets in different jurisdictions.
 - Updated discussions on the FDIC’s DIF reserves and the FDIC’s efforts to restore the DIF reserve ratio to the statutory level.
- **Chapter 14**
 - A discussion on the 2020 Consumer Financial Protection Bureau’s (CFPB) rule on Mandatory Underwriting Provisions, which revoked requirements on payday lenders.
- **Chapter 15**
 - An improved and updated figure on the U.S. natural catastrophes by insured losses over 1982–2021 period.
 - A discussion in the property-casualty industry’s performance from 2018 through 2021.
 - An updated discussion on insured natural catastrophe losses in the U.S. and globally.
 - An improved and updated figure on the global catastrophes by insured losses over 1971–2021 period.
- **Chapter 16**
 - An updated discussion on the value and number of completed M&A deals.
 - A new discussion in the venture capital (VC) deal activity.
- **Chapter 17**
 - An updated discussion on mutual fund net inflows.
 - More detailed discussion (compared to that in Chapter 5) on net new cash flows to government and prime money market funds during COVID-19 pandemic and the range of facilities established by the Fed, such as the Money Market Liquidity Facility (MMLF).
- **Chapter 19**
 - An improved definition for the term *fintech companies*.
 - An updated discussion on changing relationship between banks and fintech companies and how the threat of fintech companies has eased compared to a few years ago.
 - A new discussion on banking-as-a-service (BaaS), open banking, and banking-as-a-platform (BaaP) and their differences.
 - A new section on how Big Tech is transforming fintech.
 - A new IN THE NEWS box showing the timeline of events related to the crypto crisis.
 - A new discussion on stablecoins and the collapse of TerraUSD.
 - An updated discussion on central bank digital currencies (CBDCs).
 - A new discussion on global blockchain funding by venture capital (VC) firms and banks.
 - A new discussion on decentralized finance (DeFi).
 - An updated discussion on fintech sandboxes and fintech companies that received their national bank charters.
 - A new section on regulating Big Tech companies.

- **Chapter 22**
 - New discussions on the failure of Silicon Valley Bank (SVB) and the Signature Bank of New York (SBNY).
- **Chapter 23**
 - A brief discussion on the three bank failures in early 2023: Silicon Valley Bank, Signature Bank of New York, and the First Republic Bank.
 - A new IN THE NEWS box detailing the failure of Silicon Valley Bank.
- **Chapter 25**
 - An updated discussion on preparing Fannie Mae and Freddie Mac to become private companies again and to leave the government conservatorship.

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Anthony Saunders

Marcia Millon Cornett

Otgo Erhemjamts

WALKTHROUGH

Chapter Features

The following special features have been integrated throughout the text to encourage student interaction and to aid students in absorbing and retaining the material.

CHAPTER-OPENING OUTLINES

These outlines offer students a snapshot view of what they can expect to learn from each chapter's discussion.

O U T L I N E

Major Duties and Responsibilities of the Federal Reserve System: Chapter Overview

Structure of the Federal Reserve System

- Organization of the Federal Reserve System
- Board of Governors of the Federal Reserve System

Learning Goals

- LG 4-1** Understand the major functions of the Federal Reserve System.
- LG 4-2** Identify the structure of the Federal Reserve System.
- LG 4-3** Identify the monetary policy tools used by the Federal Reserve.
- LG 4-4** Appreciate how monetary policy changes affect key economic variables.
- LG 4-5** Understand how central banks around the world adjusted their monetary policy during the recent financial crisis.

Federal Open Market Committee (FOMC)

The major monetary policy-making body of the Federal Reserve System.

The **Federal Open Market Committee (FOMC)** is the body of the Federal Reserve that makes decisions on monetary policy. It consists of members of the Federal Reserve Bank of New York, and members of the Board of Governors (on a rotating basis). The chair of the FOMC is required to meet at least eight times a year. Scheduled meetings have been held regularly since 1951.

The main responsibilities of the FOMC are to manage the money supply, employment, economic growth, and trade. The FOMC seeks to achieve its goals through open market operations. **Open market operations** are the buying and selling of federal agency securities in the open market to achieve monetary targets (although the Federal Reserve Bank of New York also conducts operations).

open market operations

Purchases and sales of U.S. government and

LEARNING GOALS

Learning goals (LGs) appear at the beginning of each chapter to provide a quick introduction to the key chapter material. These goals are also integrated with the end-of-chapter questions and problems, which allows instructors to easily emphasize the learning goal(s) as they choose.

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subsidiaries), (2) state-chartered member banks (state-chartered member banks which U.S. banks conduct business with), and (3) Federal Reserve banks. The Federal Reserve System has several regulatory responsibilities which include overseeing banks and the establishment of new banks, and the establishment of subsidiaries, and the board approves member bank activities of bank holding companies and administration of rechartering under the Truth in Lending Act, the Equal Credit Opportunity Act, and Consumer Protection Act.

BOLD KEY TERMS AND A MARGINAL GLOSSARY

The main terms and concepts are emphasized throughout the chapter by bold key terms called out in the text and defined in the margins.

PERTINENT WEB ADDRESSES

Website addresses are referenced in the margins throughout each chapter, providing additional resources to aid in the learning process.

Pedagogical Features

DO YOU UNDERSTAND?

1. What the main functions of Federal Reserve Banks are?
2. What the main responsibilities of the Federal Reserve Board are?
3. How the FOMC implements monetary

the Fed took steps to imp markets during the finan Fannie Mae, Freddie Ma called for the purchase o on January 5, 2009, and purchaser/guarantor of a

Gold and Foreign Ex
Treasury gold certificate holds small amounts of in foreign currency tran

“DO YOU UNDERSTAND” BOXES

These boxes allow students to test themselves on the main concepts presented within each major chapter section. Solutions provided in Connect.

“IN THE NEWS” BOXES

These boxes demonstrate the application of chapter material to real current events.

IN-CHAPTER EXAMPLES

These examples provide numerical demonstrations of the analytical material described in many chapters.

IN THE NEWS

The Fed’s Policy Response to th

Since 2008, the Fed has conducted monetary policy using both conventional and unconventional tools. est rates

it employed during the Gre sion. It also revived the Pri Credit Facility (PDCF) and low interest rate loans to 2

EXAMPLE 4.1 Purchases of Securities by the Federal Re

Suppose the FOMC instructs the FRBNY Trading Desk to purchase \$50 sury securities. Traders at the FRBNY call primary government securitie commercial and investment banks (such as Goldman Sachs and Morg provide a list of securities they have available for sale, including the der

week to purchase the ble price) until the ernment bond dep The securities deal

AFTER THE CRISIS

Goldman Reaches \$5 Billion Settlement

In January 2016, Goldman Sachs agreed to pay more than \$5 billion, the largest regulatory penalty in its history. In settling with the Justice

residential mortgages, ar banks deceived investor resenting the quality of u loans. The government’s

“AFTER THE CRISIS” BOXES

These boxes use articles pertaining to events caused or affected by the 2008–2009 financial crisis to elaborate on chapter material.

INTERNATIONAL COVERAGE

An international icon appears in the margin to easily communicate where international material is being introduced.

INTERNATIONAL MONETARY POLICIES AND STRATE



Central banks guide the monetary policy in ean Central Bank (ECB) is the central ba England is the central bank of the United independent central banks whose decision. In contrast, the People’s Bank of China, th of Brazil are less independent in that the g the operations of these central banks. Ind that the bank is free from pressure from po

WALKTHROUGH

End-of-Chapter Features

EXCEL PROBLEMS

Excel problems are featured in selected chapters and are denoted by an icon. Spreadsheet templates are available in Connect.

7. 

Using a Spreadsheet to Calculate Mortgage Payments: What is the monthly payment on a \$150,000, 30-year mortgage if the mortgage rate is 5.75 percent? 6.25 percent? 7.5 percent? 9 percent? (LG 7-4)

Present Value	Periods	Interest Rate	⇒	The Payment Will Be
\$150,000	30×12	5.75%/12		\$ 875.36
150,000	30×12	6.25%/12		923.58
150,000	30×12	7.50%/12		1,048.82
150,000	30×12	9.00%/12		1,206.93

QUESTIONS

1. Describe the functions performed by Federal Reserve Banks. (LG 4-1)
2. Define the discount rate and the discount window. (LG 4-2)
3. Describe the structure of the Board of Governors of the Federal Reserve System. (LG 4-2)
4. What are the primary responsibilities of the Federal Reserve Board? (LG 4-1)
5. What are the primary responsibilities of the Federal Open Market Committee? (LG 4-2)
6. What are the major liabilities of the Federal Reserve System? Describe each. (LG 4-2)
7. Why did reserve deposits increase to the point that this account represented the largest liability account on the Federal Reserve's balance sheet in the late 2000s? (LG 4-2)
8. What are the major assets of the Federal Reserve System? Describe each. (LG 4-2)
9. Why did U.S. government agency securities go from nothing to being the largest asset account on the Federal Reserve's balance sheet in the late 2000s? (LG 4-2)

PROBLEMS

1. Suppose the Federal Reserve instructs the Trading Desk to purchase \$1 billion of securities. Show the result of this transaction on the balance sheets of the Federal Reserve System and commercial banks. (LG 4-3)

END-OF-CHAPTER QUESTIONS AND PROBLEMS

The questions and problems in the end-of-chapter material appear in separate sections, allowing instructors to choose whether they prefer students to engage in quantitative or qualitative analysis of the material. Selected problems are assignable online in Connect.

SEARCH THE SITE

Featured among the end-of-chapter material in most chapters, these Internet exercises weave the web, real data, and practical applications with concepts found in the book.

SEARCH THE SITE

Go to the Federal Reserve Board website and find the latest information available on the prime rate, and the three-month T-bill rate using the following steps. Go to www.federalreserve.gov on "Selected Interest Rates." The most recent data will be shown on your computer screen.

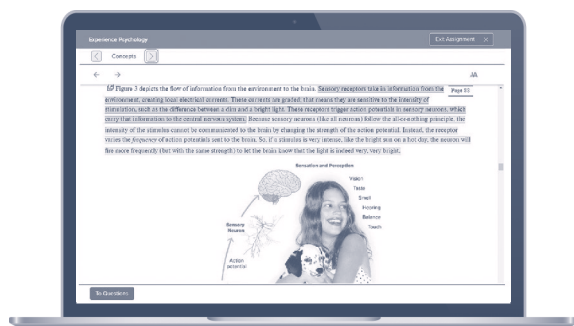
Questions

1. What are the current levels for each of these interest rates?
2. Calculate the percentage change in each of these rates since December 2022.

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***"I really liked this app—
it made it easy to study
when you don't have your
textbook in front of you."***

Jordan Cunningham, a student at
Eastern Washington University

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FOR THE INSTRUCTOR

Instructors will have access to teaching support such as electronic files of the ancillary materials, described below, available within Connect.

- **Instructor's Manual** Prepared by Leslie Rush, University of Hawai'i-West O'ahu, the Instructor's Manual includes detailed chapter contents and outline, additional examples for use in the classroom, and extensive teaching notes.
- **Test Bank** Prepared by Emily Bello, the Test Bank includes nearly 1,000 additional problems to be used for test material.
- **Solutions Manual** Prepared by the author team, this manual provides worked-out solutions to the end-of-chapter questions. Author involvement ensures consistency between the approaches presented in the text and those in the manual.
- **PowerPoint** Developed by Teresa Farough, the PowerPoint presentation includes full-color slides featuring lecture notes, figures, and tables. The slides can be easily downloaded and edited to better fit your lecture.

Student Resources

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