

Dedication

*To our families and to our many
colleagues who use this book.*

About the Authors



Ray H. Garrison is emeritus professor of accounting at Brigham Young University, Provo, Utah. He received his BS and MS degrees from Brigham Young University and his DBA degree from Indiana University.

As a certified public accountant, Professor Garrison has been involved in management consulting work with both national and regional accounting firms. He has published articles in *The Accounting Review*, *Management Accounting*, and other professional journals. Innovation in the classroom has earned Professor Garrison the Karl G. Maeser Distinguished Teaching Award from Brigham Young University.



Eric W. Noreen has taught at INSEAD in France and the Hong Kong Institute of Science and Technology and is emeritus professor of accounting at the University of Washington. Currently, he is the Accounting Circle Professor of Accounting, Fox School of Business, Temple University.

He received his BA degree from the University of Washington and MBA and PhD degrees from Stanford University. A Certified Management Accountant, he was awarded a Certificate of Distinguished Performance by the Institute of Certified Management Accountants.

Professor Noreen has served as associate editor of *The Accounting Review* and the *Journal of Accounting and Economics*. He has numerous articles in academic journals including: the *Journal of Accounting Research*; *The Accounting Review*; the *Journal of Accounting and Economics*; *Accounting Horizons*; *Accounting, Organizations and Society*; *Contemporary Accounting Research*; the *Journal of Management Accounting Research*; and the *Review of Accounting Studies*.

Professor Noreen has won a number of awards from students for his teaching.



Peter C. Brewer is a Lecturer in the Department of Accountancy at Wake Forest University. Prior to joining the faculty at Wake Forest, he was an accounting professor at Miami University for 19 years. He holds a BS degree in accounting from Penn State University, an MS degree in accounting from the University of Virginia, and a PhD from the University of Tennessee. He has published more than 35 articles in a variety of journals including: *Management Accounting Research*; the *Journal of Information Systems*; *Cost Management*; *Strategic Finance*; the *Journal of Accountancy*; *Issues in Accounting Education*; and the *Journal of Business Logistics*.

Management Accounting Research; the *Journal of Information Systems*; *Cost Management*; *Strategic Finance*; the *Journal of Accountancy*; *Issues in Accounting Education*; and the *Journal of Business Logistics*.

Professor Brewer is a member of the editorial board of the *Journal of Accounting Education* and has served on the editorial board of *Issues in Accounting Education*. His article “Putting Strategy into the Balanced Scorecard” won the 2003 International Federation of Accountants’ Articles of Merit competition, and his articles “Using Six Sigma to Improve the Finance Function” and “Lean Accounting: What’s It All About?” were awarded the Institute of Management Accountants’ Lybrand Gold and Silver Medals in 2005 and 2006. He has received Miami University’s Richard T. Farmer School of Business Teaching Excellence Award.

Prior to joining the faculty at Miami University, Professor Brewer was employed as an auditor for Touche Ross in the firm’s Philadelphia office. He also worked as an internal audit manager for the Board of Pensions of the Presbyterian Church (U.S.A.).

Let **Garrison** be Your Guide

Garrison truly is the gold standard of managerial accounting texts.

*Pamela Rouse,
Butler University*

It is the 'Bible' of Managerial Accounting.

*Mark Motluck,
Anderson University*

Garrison is clearly the best managerial accounting text available.

*'Carleton Donchess,
Bridgewater State University'*

I am a big fan of this book. I have taught this course with a few other books and this book does the best job tying all the concepts together. When asked I always refer to this book as being superior to the other books that I have used.

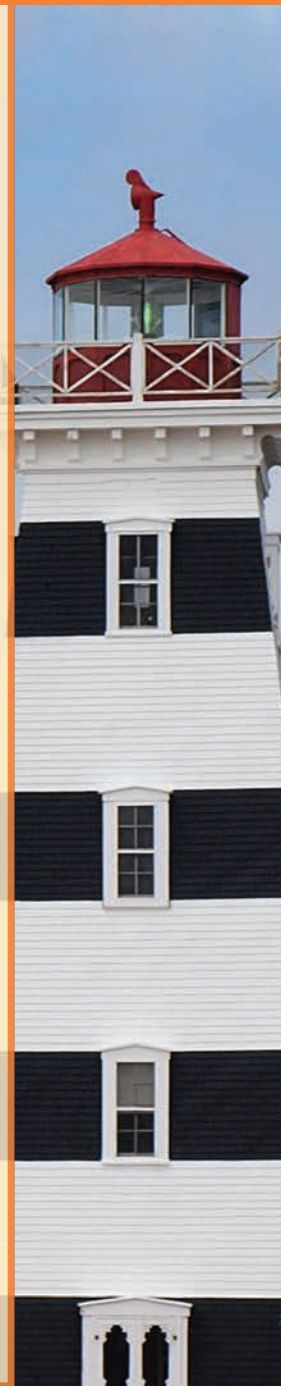
*Christopher O'Byrne,
Cuyamaca College*

For centuries, the lighthouse has provided guidance and safe passage for sailors. Similarly, Garrison/Noreen/Brewer has successfully guided millions of students through managerial accounting, helping them sail smoothly through the course.

Decades ago, lighthouses were still being operated manually. In these days of digital transformation, lighthouses are run using automatic lamp changers and other modern devices. In much the same way, Garrison/Noreen/Brewer has evolved over the years. Today, the Garrison book not only guides students—accounting majors and other business majors alike—safely through the course but is enhanced by a number of powerful new tools to augment student learning and increase student motivation. McGraw-Hill *Connect Accounting* and the LearnSmart Advantage Suite offer a number of features to facilitate student learning. **NEW** Intelligent Resource Technology interface for *Connect Accounting* includes improved answer acceptance for formatting issues, a general journal application that looks and feels more like a general ledger software package, and table entry for select problems so students can complete calculations online. Animated, narrated Interactive Presentations for each learning objective teach the core concepts of the text and animated, narrated Guided Examples connected to practice exercises provide a step-by-step walkthrough of a similar exercise, assisting students when they need it most. The student library within *Connect* gives students access to additional resources, such as forms for the Applying Excel feature, an electronic version of the textbook, and more.

The **NEW** LearnSmart Advantage Suite, powerful products fueled by the proven McGraw-Hill LearnSmart engine, include additional learning resources in LearnSmart Achieve and the first ever adaptive eBook experience in SmartBook. These products utilize data collected from over 2 million student users and advanced scientific algorithms to ensure that every minute a student spends studying is the most efficient and productive minute possible for that individual student.

Just as the lighthouse continues to provide reliable guidance to seafarers, the Garrison/Noreen/Brewer book continues its tradition of helping students sail successfully through managerial accounting by always focusing on three important qualities: **relevance, accuracy, and clarity.**



RELEVANCE. Every effort is made to help students relate the concepts in this book to the decisions made by working managers. In the fifteenth edition, the authors have added a new section to Chapter 1 titled Managerial Accounting: Beyond the Numbers, which has expanded coverage of leadership skills with the goal of helping all business students better understand why managerial accounting is relevant to their future careers. New and revised In Business boxes throughout the book link chapter concepts to pertinent real-world examples. Service industry references appear throughout the chapter narrative and end-of-chapter material to provide students with relevant context for the material they are learning. The robust *Connect Accounting* technology package and the LearnSmart Advantage Suite include new and exciting tools to help keep students engaged in the learning process. For these reasons and many more, a student reading Garrison should never have to ask “Why am I learning this?”

ACCURACY. The Garrison book continues to set the standard for accurate and reliable material in its fifteenth edition. With each revision, the authors evaluate the book and its supplements in their entirety, working diligently to ensure that the end-of-chapter material, solutions manual, and test bank are consistent, current, and accurate.

CLARITY. Generations of students have praised Garrison for the friendliness and readability of its writing, but that’s just the beginning. In the fifteenth edition, the authors have rewritten various chapters with input and guidance from instructors around the country to ensure that teaching and learning from Garrison remains as easy as it can be.

The authors’ steady focus on these three core elements has led to tremendous results. *Managerial Accounting* has consistently led the market, being used by over two million students and earning a reputation for reliability that other texts aspire to match.

Garrison does a superior job of introducing Managerial Accounting and necessary management skills. In addition, the textbook discusses the crucial topics of why managerial accounting matters to one’s career, ethics, and social responsibility.

*Ann K. Brooks,
University of New Mexico*

The authors have done a great job explaining managerial accounting concepts and providing real-world examples that students can relate to.

*Stephen Benner,
Eastern Illinois University*

It provides simple and clear explanations of the concepts with easy to follow examples. It is ideal for undergraduate and graduate level accounting students.


*Rong Huang,
Baruch College*

The Garrison [text] is clearly the best written managerial accounting book that I have reviewed. The examples throughout the chapter would enable a student to use this book and learn managerial accounting in an on-line or hybrid class.

*Edna Mitchell,
Polk State College*

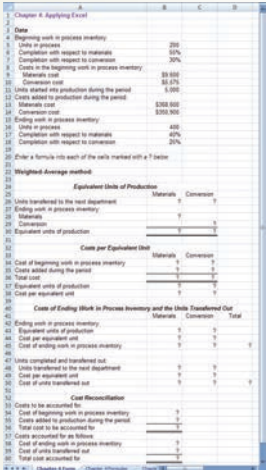
Garrison's

Managerial Accounting includes pedagogical elements that engage and instruct students without cluttering the pages or interrupting student learning. Garrison's key pedagogical tools enhance and support students' understanding of the concepts rather than compete with the narrative for their attention.

Applying Excel  Available with McGraw-Hill's Connect® Accounting.

L04-2, L04-3, L04-4, L04-5

The Excel worksheet form that appears below is to be used to recreate the extended example on pages 153-155. Download the workbook containing this form from the Online Learning Center at www.mhhe.com/garrison15e. On the website you will also receive instructions about how to use this worksheet form.



You should proceed to the requirements below only after completing your worksheet.

Required:

1. Check your worksheet by changing the beginning work in process inventory to 100 units, the units started into production during the period to 2,500 units, and the units in ending work in process inventory to 200 units, keeping all of the other data the same as in the original example. If your worksheet is operating properly, the cost per equivalent unit for materials should now be \$152.50 and the cost per equivalent unit for conversion

The Foundational 15

NEW to the fifteenth edition of Garrison!

Each chapter now contains one Foundational 15 exercise that includes 15 “building-block” questions related to one concise set of data. These exercises can be used for in-class discussion or as homework assignments. They are found before the Exercises and are available in *Connect Accounting*.

Applying Excel

This end-of-chapter feature **links the power of Excel with managerial accounting concepts** by illustrating how Excel functionality can be used to better understand accounting data. Applying Excel goes beyond plugging numbers into a template by providing students with an opportunity to build their own Excel worksheets and formulas. Students are then asked “what if” questions in which they analyze not only **how** related pieces of accounting data affect each other but **why**

they do. Applying Excel immediately precedes the Exercises in twelve of the fifteen chapters in the book and is also **integrated with McGraw-Hill's Connect® Accounting**, allowing students to practice their skills online with algorithmically generated datasets.

I like the Foundational 15 and its integration of all the chapter objectives into one problem that can be reviewed in class.

Melanie Anderson, Slippery Rock University

[Applying Excel is] an excellent way for students to programmatically develop spreadsheet skills without having to be taught spreadsheet techniques by the instructor. A significant associated benefit is that students gain more exposure to the dynamics of accounting information by working with what-if scenarios.

Earl Godfrey, Gardner-Webb University

Powerful Pedagogy

Opening Vignette

Each chapter opens with a **Business Focus** feature that provides a real-world example for students, allowing them to see how the chapter's information and insights apply to the world outside the classroom. **Learning Objectives** alert students to what they should expect as they progress through the chapter.

I like how you engage the reader with the “Business Focus” at the beginning of the chapter.

*Kathy Crusto-Way,
Tarrant County College*

An excellent text that is especially good for introductory managerial accounting classes because it is organized in a logical topic development flow.

*Elizabeth Widdison,
University of Washington, Seattle*



CHAPTER 4

Process Costing

Costing the “Quicker-Picker-Upper”



BUSINESS FOCUS

If you have ever spilled milk, there is a good chance that you used Bounty paper towels to clean up the mess. **Procter & Gamble (P&G)** manufactures Bounty in two main processing departments—Paper Making and Paper Converting. In the Paper Making Department, wood pulp is converted into paper and then spooled into 2,000 pound rolls. In the Paper Converting Department, two of the 2,000 pound rolls of paper are simultaneously unwound into a machine that creates a two-ply paper towel that is decorated, perforated, and embossed to create texture. The large sheets of paper towels that emerge from this process are wrapped around a cylindrical cardboard core measuring eight feet in length. Once enough sheets wrap around the core, the eight foot roll is cut into individual rolls of Bounty that are sent down a conveyor to be wrapped, packed, and shipped.

In this type of manufacturing environment, costs cannot be readily traced to individual rolls of Bounty; however, given the homogeneous nature of the product, the total costs incurred in the Paper Making Department can be spread uniformly across its output of 2,000 pound rolls of paper. Similarly, the total costs incurred in the Paper Converting Department (including the cost of the 2,000 pound rolls that are transferred in from the Paper Making Department) can be spread uniformly across the number of cases of Bounty produced.

P&G uses a similar costing approach for many of its products such as Tide, Crest toothpaste, and Dawn dishwashing liquid. ■

Source: Conversation with Brad Bays, formerly a Procter & Gamble financial executive.

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LEARNING OBJECTIVES

After studying Chapter 4, you should be able to:

- LO4-1** Record the flow of materials, labor, and overhead through a process costing system.
- LO4-2** Compute the equivalent units of production using the weighted-average method.
- LO4-3** Compute the cost per equivalent unit using the weighted-average method.
- LO4-4** Assign costs to units using the weighted-average method.
- LO4-5** Prepare a cost reconciliation report.
- LO4-6** (Appendix 4A) Compute the equivalent units of production using the FIFO method.
- LO4-7** (Appendix 4A) Compute the cost per equivalent unit using the FIFO method.
- LO4-8** (Appendix 4A) Assign costs to units using the FIFO method.
- LO4-9** (Appendix 4A) Prepare a cost reconciliation report using the FIFO method.
- LO4-10** (Appendix 4B) Allocate service department costs to operating departments using the direct method.
- LO4-11** (Appendix 4B) Allocate service department costs to operating departments using the step-down method.

Excellent coverage of the topics. Easy for students to read.

*Sharon Bell,
The University of North Carolina at Pembroke*

THE DIFFERENCE BETWEEN LABOR RATES AND LABOR COST

The emergence of China as a global competitor has increased the need for managers to understand the difference between labor rates and labor cost. Labor rates reflect the amount paid to employees per hour or month. Labor costs measure the employee compensation paid per unit of output. For example, **Tenneco** has plants in Shanghai, China, and Litchfield, Michigan, that both manufacture exhaust systems for automobiles. The monthly labor rate per employee at the Shanghai plant ranges from \$210–\$250, whereas the same figure for the Litchfield plant ranges from \$1,890–\$4,064. A naïve interpretation of these labor rates would be to automatically assume that the Shanghai plant is the lower labor cost facility. A wiser comparison of the two plants' labor costs would account for the fact that the Litchfield plant produced 1.4 million exhaust systems in 2005 compared to 400,000 units at the Shanghai plant, while having only 20% more employees than the Shanghai plant.

IN BUSINESS



In Business Boxes

These helpful boxed features offer a glimpse into how real companies use the managerial accounting concepts discussed within the chapter. Each chapter contains from three to fourteen of these current examples.

In-depth, clear coverage; interesting updated examples in the “In Business” boxes.

Natalie Allen,
Texas A&M University

Extremely well written with great examples, including the Managerial in Action segments.

Loisanne Kattelman,
Weber State University

Cost-Volume-Profit Relationships 205

IN BUSINESS

COMPUTING MARGIN OF SAFETY FOR A SMALL BUSINESS

Sam Calagione owns **Dogfish Head Craft Brewery**, a microbrewery in Rehoboth Beach, Delaware. He charges distributors as much as \$100 per case for his premium beers such as World Wide Stout. The high-priced microbrews bring in \$800,000 in operating income on revenue of \$7 million. Calagione reports that his raw ingredients and labor costs for one case of World Wide Stout are \$30 and \$16, respectively. Bottling and packaging costs are \$6 per case. Gas and electric costs are about \$10 per case.

If we assume that World Wide Stout is representative of all Dogfish microbrews, then we can compute the company's margin of safety in five steps. First, variable cost as a percentage of sales is 62% ($\$30 + \$16 + \$6 + \$10 / \$100$). Second, the contribution margin ratio is 38% ($1 - 0.62$). Third, Dogfish's total fixed cost is $\$1,860,000$ ($\$7,000,000 \times 0.38 - \$800,000$). Fourth, the break-even point in dollar sales is $\$4,894,737$ ($\$1,860,000 / 0.38$). Fifth, the margin of safety is $\$2,105,263$ ($\$7,000,000 - \$4,894,737$).

Source: Patricia Huang, “Château Dogfish,” *Forbes*, February 28, 2005, pp. 57–59.

Prem Narayan and Bob Luchinni met to discuss the results of Bob's analysis.

Prem: Bob, everything you have shown me is pretty clear. I can see what impact the sales manager's suggestions would have on our profits. Some of those suggestions are quite good and others are not so good. I am concerned that our margin of safety is only 50 speakers. What can we do to increase this number?

Bob: Well, we have to increase total sales or decrease the break-even point or both.

Prem: And to decrease the break-even point, we have to either decrease our fixed expenses or increase our unit contribution margin?

Bob: Exactly.

Prem: And to increase our unit contribution margin, we must either increase our selling price or decrease the variable cost per unit?

Bob: Correct.

Prem: So what do you suggest?

Bob: Well, the analysis doesn't tell us which of these to do, but it does indicate we have a potential problem here.

Prem: If you don't have any immediate suggestions, I would like to call a general meeting next week to discuss ways we can work on increasing the margin of safety. I think everyone will be concerned about how vulnerable we are to even small downturns in sales.

MANAGERIAL ACCOUNTING IN ACTION THE WRAP-UP

ACOUSTIC CONCEPTS

CVP Considerations in Choosing a Cost Structure

Cost structure refers to the relative proportion of fixed and variable costs in an organization. Managers often have some latitude in trading off between these two types of costs. For example, fixed investments in automated equipment can reduce variable labor costs. In this section, we discuss the choice of a cost structure. We also introduce the concept of *operating leverage*.

Cost Structure and Profit Stability

Which cost structure is better—high variable costs and low fixed costs, or the opposite? No single answer to this question is possible; each approach has its advantages. To show what we mean, refer to the following contribution format income statements for two

Managerial Accounting in Action Vignettes

These vignettes depict cross-functional teams working together in real-life settings, working with the products and services that students recognize from their own lives. Students are shown step-by-step how accounting concepts are implemented in organizations and how

these concepts are applied to solve everyday business problems. First, “The Issue” is introduced through a dialogue; the student then walks through the implementation process; finally, “The Wrap-up” summarizes the big picture.

End-of-Chapter Material

Managerial Accounting has earned a reputation for the best end-of-chapter practice material of any text on the market. Our problem and case material continues to conform to AACSB recommendations and makes a great starting point for class discussions and group projects. When Ray Garrison first wrote *Managerial Accounting*, he started with the end-of-chapter material, then wrote the narrative in support of it. This unique approach to textbook authoring not only ensured consistency between the end-of-chapter material and text content but also underscored Garrison's fundamental belief in the importance of applying theory through practice. It is not enough for students to read, they must also understand. To this day, the guiding principle of that first edition remains, and Garrison's superior end-of-chapter material continues to provide accurate, current, and relevant practice for students.

The **NEW** Foundational 15 end-of-chapter feature provides one set of data and fifteen building-block questions relating to the quantitative topics covered in that particular chapter, allowing the student to work through and gain a practical understanding of the computational material.

The Applying Excel end-of-chapter feature integrates key course concepts and Excel—a software students will encounter in the workplace, whether they go into accounting or any other business major. With Applying Excel, students not only gain practice working with Excel software, they also learn how Excel can be used to present accounting data and how that data is interrelated. For more information on this feature, please see page x.

Applying Excel Available with McGraw-Hill's Connect® Accounting.

L04-2, L04-3, L04-4, L04-5 The Excel worksheet form that appears below is to be used to recreate the extended example on pages 153–155. Download the workbook containing this form from the Online Learning Center at www.mhhe.com/garrison5e. On the website you will also receive instructions about how to use this worksheet form.

Exercises

All applicable exercises are available with McGraw-Hill's Connect® Accounting.

EXERCISE 3-1 Compute the Predetermined Overhead Rate [L03-1]
Harris Fabrics computes its predetermined overhead rate annually on the basis of direct labor-hours. At the beginning of the year, it estimated that 20,000 direct labor-hours would be required for the period's estimated level of production. The company also estimated \$98,000 of fixed manufacturing overhead expenses for the coming period and variable manufacturing overhead of \$2.00 per direct labor-hour. Harris's actual manufacturing overhead for the year was \$123,900 and its actual total direct labor was 21,000 hours.

Required:
Compute the company's predetermined overhead rate for the year.

EXERCISE 3-2 Apply Overhead [L03-2]
Lathan Company uses a predetermined overhead rate of \$23.40 per direct labor-hour. This predetermined rate was based on a cost formula that estimated \$29,400 of total manufacturing overhead for an estimated activity level of 11,000 direct labor-hours.

The company incurred actual total manufacturing overhead costs of \$249,000 and 10,800 total direct labor-hours during the period.

Problems

All applicable problems are available with McGraw-Hill's Connect® Accounting.

PROBLEM 4-13 Comprehensive Problem: Second Production Department—Weighted-Average Method [L04-2, L04-3, L04-4, L04-5]
Old Country Links Inc. produces sausages in three production departments—Mixing, Casing and Curing, and Packaging. In the Mixing Department, meats are prepared and ground and then mixed with spices. The spiced meat mixture is then transferred to the Casing and Curing Department, where the mixture is force-fed into casings and then hung and cured in climate-controlled smoking chambers. In the Packaging Department, the cured sausages are sorted, packed, and labeled. The company uses the weighted-average method in its process costing system. Data for September for the Casing and Curing Department follow:

Work in process inventory, September 1	Percent Completed			
	Units	Mixing	Materials	Conversion
1	100%	80%	80%	

Cases

All applicable cases are available with McGraw-Hill's Connect® Accounting.

CASE 4-19 Second Department—Weighted-Average Method [L04-2, L04-3, L04-4]
"I think we goofed when we hired that new assistant controller," said Ruth Scarpino, president of Prowest Industries. "Just look at this report that he prepared for last month for the Finishing Department. I can't understand it!"

Finishing Department costs:

Work in process inventory, April 1, 450 units; materials 100% complete; conversion 60% complete	\$ 8,208
Costs transferred in during the month from the preceding department, 1,950 units	17,840
Materials cost added during the month	6,210
Conversion costs incurred during the month	13,920
Total departmental costs	46,278

Finishing Department costs assigned to:

Units completed and transferred to finished goods, 1,800 units at \$25.71 per unit	\$46,278
Work in process inventory, April 30, 600 units; materials 0% complete; conversion 25% complete	0
Total departmental costs assigned	\$46,278

Strong integration between chapter content and end-of-chapter exercises/problems. Clearly written and well-organized content.

*Carleton Donchess,
Bridgewater State University*

Well written, well organized, and good problems to illustrate concepts

*Eric Typpo,
University of the Pacific*

The resources available at the online learning center and through *Connect Plus* are comprehensive, helpful, and easy to use.

Mary Scarborough,
Tyler Junior College

Clear presentation of material in the chapter with robust support materials through the text website and *Connect*.

David Krug, Johnson County
Community College

Business Ethics are of growing importance and the coverage early in the book is commendable.

Hemingild Mpundu,
University of Northern Iowa

Author-Written Supplements

Unlike other managerial accounting texts, the book's authors write all of the major supplements, ensuring a perfect fit between text and supplements. For more information on *Managerial Accounting's* supplements package, see page xxiii.

- Instructor's Manual
- Test bank
- Solutions Manual

Utilizing the Icons



To reflect our service-based economy, the text is replete with examples from service-based businesses. A helpful icon distinguishes service-related examples in the text.



The IFRS icon highlights content that may be affected by the impending change to IFRS and possible convergence between U.S. GAAP and IFRS.



Ethics assignments and examples serve as a reminder that good conduct is vital in business. Icons call out content that relates to ethical behavior for students.



The writing icon denotes problems that require students to use critical thinking as well as writing skills to explain their decisions.

New to the Fifteenth Edition

Faculty feedback helps us continue to improve *Managerial Accounting*. In response to reviewer suggestions, the authors have made the following changes to the text:

- All chapters have the NEW **Foundational 15** end-of-chapter feature.
- New **In Business boxes** have been added throughout to provide relevant and updated real-world examples for use in classroom discussion and to support student understanding of key concepts as they read through a chapter.
- The **end-of-chapter practice material** has been updated throughout.
- Several chapters (Chapters 2, 8, and 13) now better highlight the dynamic nature and power of **Excel** as a tool for managerial accounting.

Chapter 1

This chapter has a new section titled Managerial Accounting: Beyond the Numbers. It has expanded coverage of leadership skills and an expanded set of end-of-chapter exercises.

Chapter 2

The learning objective pertaining to direct and indirect costs has been moved to the front of the chapter to improve the students' ability to understand the material. Appendix 2A has been overhauled to simplify the explanation of how to use Microsoft Excel to perform least-squares regression analysis.

Chapter 3

This chapter has added Appendix 3A: Activity-Based Absorption Costing; this material was formerly Appendix 7B in the previous edition of the book. Moving this material to Chapter 3 offers instructors greater flexibility when determining how to cover activity-based costing.

Chapter 4

Updated with a new In Business box.

Chapter 5

The assumptions of CVP analysis have been moved from the end of the chapter to the beginning of the chapter. The target profit analysis and break-even analysis learning objectives have been reversed.

Chapter 6

This chapter has added a new learning objective related to calculating companywide and segment break-even points for companies with traceable fixed costs. It has also added a new appendix related to super-variable costing.

Chapter 7

This chapter has added a new exhibit and accompanying text to better explain key concepts and terminology within the chapter.

Chapter 8

This chapter has been renamed, and we have added new text and an exhibit to help students better understand how and why a master budget is created and how Microsoft Excel can be used to create a financial planning model that answers “what-if” questions. Two new end-of-chapter exercises that enable students to use Microsoft Excel to answer “what-if” questions have also been added.

Chapter 9

A discussion of the variance analysis cycle and management by exception has been inserted in the front of this chapter; this material was previously included in the standard costing chapter. In response to customer feedback, we reversed the headings in the flexible budget performance report. The actual results are shown in the far-left column and the planning budget is shown in the far-right column.

Chapter 10

In response to customer feedback, we reversed the headings in the general model for standard cost variance analysis. The actual results ($AQ \times AP$) are shown in the far-left column and the flexible budget ($SQ \times SP$) is shown in the far-right column.

Chapter 11

This chapter has a new Business Focus feature and two new In Business boxes.

Chapter 12

A section illustrating the meaning of a constraint has been added. Also, several new In Business boxes have been created.

Chapter 13

The learning objective pertaining to the payback period has been moved to the front of the chapter. A Microsoft Excel-based approach has been adopted for depicting net present value calculations. We have added a discussion of the behavioral implications of the simple rate of return method. Appendix 13C has been completely overhauled so that students can more easily grasp the impact of income taxes on net present value analysis.

Chapter 14

This chapter has been updated with new In Business boxes.

Chapter 15

This chapter’s learning objectives have all been redefined to emphasize an internal management perspective. Four new ratios have been added to the text to further enrich the students’ learning opportunities.

Learn with Adaptive Technology

Each innovative product in the LearnSmart Advantage suite is powered by the proven McGraw-Hill LearnSmart engine that has helped over 2 million student users answer nearly 1.5 billion questions since 2009. All this data has been harnessed to make the LearnSmart Advantage products the most intelligent, reliable, and effective adaptive learning tools that are available to students.

With products that span the entire learning process from course preparation to providing the first adaptive reading experience, LearnSmart Advantage is the most widely used and intelligent suite of adaptive study resources available today. This innovative series of adaptive learning products is designed to deliver demonstrable results in boosting grades, increasing course retention, and strengthening memory recall.

These powerful products in the LearnSmart Advantage Suite are available with Garrison 15e:

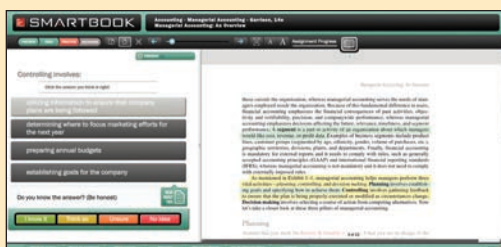


LearnSmart LEARNSMART[®]

An adaptive self-study technology that guarantees students are learning faster, studying more efficiently, and retaining more knowledge. As LearnSmart gets to know each individual student user, it identifies what a student does or does not know, ensuring that the most valuable information is presented to maximize each minute of time spent studying. LearnSmart also pinpoints areas that a student is most likely to forget and encourages periodic review so that knowledge is truly learned and retained. Students who use LearnSmart are 35% more likely to complete their class; 13% more likely to pass their class; and have been proven to improve their performance by a full letter grade.

How Does LearnSmart work?

A student begins by answering a series of questions related to core concepts and key themes from the selected chapter(s). For each question answered, a student will be asked to provide a confidence rating, acknowledging their level of knowledge. LearnSmart uses this information, in tandem with the answer itself, to improve the individual learning path by adjusting which questions to present, as well as the difficulty of these questions. Throughout the study session, students can monitor their progress by viewing a series of performance reports that reinforce the content they need to study. They can also compare their score to their classmates and other students from around the world. LearnSmart revisits the content a student is struggling with to convert knowledge to long-term memory and improve overall retention of information.

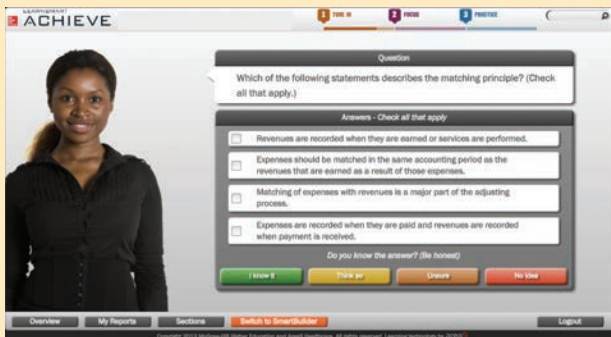


SmartBook SMARTBOOK[™]

As the first and only adaptive reading experience, SmartBook is changing the way students read and learn. SmartBook creates a personalized reading experience by highlighting the most important concepts a student needs to learn at that moment in time. The reading experience continuously adapts by highlighting content based on what each student knows and doesn't know. This ensures that he or she is focused on the content needed to close specific knowledge gaps, while simultaneously promoting long-term learning. Valuable reports provide instructors insight as to how students are progressing through textbook content, and are useful for shaping in-class time or assessment.

How Does SmartBook Work?

Each SmartBook contains four components: Preview, Read, Practice, and Recharge. Starting with an initial preview of each chapter and key learning objectives, students read the material and are guided to topics that need the most practice based on their responses to a continuously adapting diagnostic. Read and practice continue until SmartBook directs students to recharge important material they are most likely to forget to ensure concept mastery and retention.



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ACHIEVE™

LearnSmart Achieve

A revolutionary new learning system that combines a continually adaptive learning experience with rich, dynamic resources for student achievement. As a student progresses through LearnSmart Achieve, the program's continuously adaptive learning path adjusts to deliver just-in-time videos catered to his or her specific needs.

How Does LearnSmart Achieve Work?


LearnSmart Achieve uses a simple three-phase process to help students achieve academic success:

Tune In—Students are asked a sample series of questions related to a specific learning objective to assess their baseline understanding of the content and identify knowledge gaps.

Focus—Based on their responses to the **Tune In** questions, Achieve presents learning resources to teach the concepts that each student struggles with most.

Practice—After the **Focus** phase, Achieve asks students a more in-depth series of questions to confirm their understanding of the key objectives and adjusts accordingly, providing suggested learning resources to assist students in mastering all core concepts.

A Market-Leading Book Deserves Market-Leading Technology

McGraw-Hill **Connect**[®] Accounting  **connect**[™]
| ACCOUNTING

Get Connect Accounting. Get Results.

McGraw-Hill's *Connect Accounting* is a digital teaching and learning environment that gives students the means to better connect with their coursework, with their instructors, and with the important concepts that they will need to know for success now and in the future. With *Connect Accounting*, instructors can deliver assignments, quizzes, and tests easily online. Students can practice important skills at their own pace and on their own schedule.

Online Assignments

Connect Accounting helps students learn more efficiently by providing feedback and practice material when and where they need it. *Connect Accounting* grades homework automatically and gives immediate feedback on any questions students may have missed.

Intelligent Response Technology (IRT)

IRT is a redesigned student interface for our end-of-chapter assessment content. The benefits include improved answer acceptance to reduce students' frustration with formatting issues (such as rounding). Also, select questions have been redesigned to test students' knowledge more fully. They now include tables for students to work through rather than requiring that all calculations be done offline.

Student Library

The *Connect Accounting* Student Library gives students access to additional resources such as recorded lectures, online practice materials, an eBook, and more.

Interactive Presentations

Interactive Presentations, assignable by individual learning objective within *Connect*, teach the core concepts of the text in an animated, narrated, and interactive multimedia format, bringing the key concepts of the course to life—particularly helpful for online courses and for those audio and visual learners who struggle reading the textbook page by page.

Guided Examples

Guided Examples, embedded within *Connect Accounting*, provide a narrated, animated, step-by-step walkthrough of select exercises similar to those assigned. These short presentations provide reinforcement when students need it most.

The three best things about Connect Accounting are LearnSmart (loved it!), Interactive Presentations, and Guided Examples (students loved them!).

Loisanne Kattelman, Weber State University

1. **10.00 points**
Koffee Express operates a number of espresso coffee stands in busy suburban malls. The fixed weekly expense of a coffee stand is \$1,100 and the variable cost per cup of coffee served is \$0.26.

Required:
1. Fill in the following table with your estimates of total costs and average cost per cup of coffee at the indicated levels of activity for a coffee stand. (Round the "Average cost per cup of coffee served" to 3 decimal places.)

	Cups of Coffee Served in a Week		
	1,000	1,500	2,000
Fixed cost	\$ 1,100		
Variable cost	488		
Total cost	\$ 1,588		
Average cost per cup of coffee served			

2. Does the average cost per cup of coffee served increase, decrease, or remain the same as the number of cups of coffee served in a week increases?
 Increase
 Decrease
 Remain the same

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Essential resources for practice and study.

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lectures

Differential Cost and Revenue

Costs are all divided into two broad categories: variable and fixed. Variable costs are those that change with the level of activity. Fixed costs are those that do not change with the level of activity. Differential costs are those costs that differ between two levels of activity. Differential revenue is the difference in revenue between two levels of activity.

Java Express operates a number of espresso coffee stands in busy suburban malls. The fixed weekly expense of a coffee stand is \$1,500 and the variable cost per cup of coffee served is \$0.19.

Required:
Estimate the total costs and average cost per cup of coffee at the indicated levels of activity for a coffee stand. Round off the cost of a cup of coffee to the nearest cent.

	Cups of Coffee Served in a Week		
	2,700	3,600	4,500
Fixed cost	\$1,500	\$1,500	\$1,500
Variable cost	.703	.722	.751
Total cost	\$2,203	\$2,222	\$2,251
Average cost per cup of coffee served	\$ 0.82	\$ 0.58	\$ 0.52

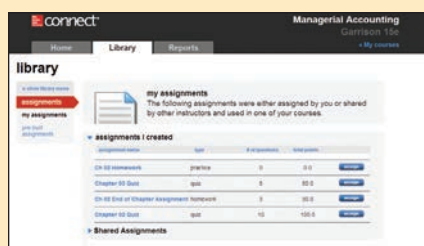
McGraw-Hill Connect Accounting Features

Connect Accounting offers a number of powerful tools and features to make managing assignments easier, so faculty can spend more time teaching.

Simple Assignment Management and Smart Grading.

With *Connect Accounting*, creating assignments is easier than ever, so you can spend more time teaching and less time managing.

- Create and deliver assignments easily with selectable end-of-chapter questions and test bank items.
- Go paperless with the eBook and online submission and grading of student assignments.
- Have assignments scored automatically, giving students immediate feedback on their work and side-by-side comparisons with correct answers.
- Access and review each response; manually change grades or leave comments for students to review.
- Reinforce classroom concepts with practice tests and instant quizzes.



Instructor Library

The *Connect Accounting* Instructor Library is a repository for additional resources to improve student engagement in and out of class. You can select and use any asset that enhances your lecture. The *Connect Accounting* Instructor Library includes access to the eBook version of the text, PowerPoint slides, Solutions Manual, Instructor's Manual, and Test Bank. The *Connect Accounting* Instructor Library also allows you to upload your own files.





Student Reports

Connect Accounting keeps instructors informed about how each student, section, and class is performing, allowing for more productive use of lecture and office hours. The progress-tracking enables you to:

- View scored work immediately and track individual or group performance with assignment and grade reports.
- Access an instant view of student or class performance relative to learning objectives.
- Collect data and generate reports required by many accreditation organizations, such as AACSB and AICPA.



McGraw-Hill Connect Plus Accounting

 **connect**  McGraw-Hill reinvents the textbook learning experience for the modern student with *Connect Plus Accounting*, which provides a seamless integration of the eBook and *Connect Accounting*. *Connect Plus Accounting* provides all of the *Connect Accounting* features, as well as:

- An integrated media-rich eBook, allowing for anytime, anywhere access to the textbook.
- Media-rich capabilities like embedded audio/visual presentations, highlighting, and note sharing.
- Dynamic links between the problems or questions you assign to your students and the location in the eBook where the concept is covered.
- A powerful search function to pinpoint and connect key concepts in a snap.

For more information about *Connect Accounting*, go to www.mcgrawhillconnect.com, or contact your local McGraw-Hill sales representative.

Tegrity Campus: Lectures 24/7



Tegrity Campus, a McGraw-Hill company, provides a service that makes class time available 24/7 by automatically capturing every lecture. With a simple one-click start-and-stop process, you capture all computer screens and corresponding audio in a format that is easily searchable, frame by frame. Students can replay any part of any class with easy-to-use browser-based viewing on a PC or Mac, an iPod, or other mobile device.

Educators know that the more students can see, hear, and experience class resources, the better they learn. In fact, studies prove it. Tegrity Campus's unique search feature helps students efficiently find what they need, when they need it, across an entire semester of class recordings. Help turn your students' study time into learning moments immediately supported by your lecture. With Tegrity Campus, you also increase intent listening and class participation by easing students' concerns about note-taking. Lecture Capture will make it more likely you will see students' faces, not the tops of their heads.

To learn more about Tegrity, watch a 2-minute Flash demo at <http://tegritycampus.mhhe.com>.

McGraw-Hill Campus



McGraw-Hill Campus is a new one-stop teaching and learning experience available to users of any learning management system. This institutional service allows faculty and students to enjoy single sign-on (SSO) access to all McGraw-Hill Higher Education materials, including the award-winning McGraw-Hill Connect platform, directly from within the institution's website. McGraw-Hill Campus provides faculty with instant access to teaching materials (e.g., eTextbooks, Test Banks, PowerPoint slides, animations, and learning objects), allowing them to browse, search, and use any ancillary content in our vast library. Students enjoy SSO access to a variety of free products (e.g., quizzes, flash cards, and presentations) and subscription-based products (e.g., McGraw-Hill Connect). With McGraw-Hill Campus, faculty and students will never need to create another account to access McGraw-Hill products and services.

McGraw-Hill Create



McGraw-Hill Create is a new, self-service website that allows instructors to create custom course materials by drawing upon McGraw-Hill's comprehensive, cross-disciplinary content. Instructors can add their own content quickly and easily and tap into other rights-secured third-party sources as well, then arrange the content in a way that makes the most sense for their course. Instructors can even personalize their book with the course name and information and choose the best format for their students—color print, black-and-white print, or an eBook. Through Create, instructors can select and arrange the content in a way that makes the most sense for their course; combine material from different sources and even upload their own content; choose the best format for their students—print or eBook; and edit and update their course materials as often as they'd like. Begin creating now at www.mcgrawhillcreate.com.

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CourseSmart is a way for faculty to find and review eTextbooks. It's also a great option for students who are interested in accessing their course materials digitally and saving money.

CourseSmart offers thousands of the most commonly adopted textbooks across hundreds of courses from a wide variety of higher education publishers. It is the only place for faculty to review and compare the full text of a textbook online, providing immediate access without the environmental impact of requesting a print exam copy. With the CourseSmart eTextbook, students can save up to 45 percent off the cost of a print book, reduce their impact on the environment, and access powerful web tools for learning.

CourseSmart is an online eTextbook, which means users access and view their textbook online when connected to the Internet. Students can also print sections of the book for maximum portability. CourseSmart eTextbooks are available in one standard online reader with full text search, notes and highlighting, and e-mail tools for sharing notes between classmates. For more information on CourseSmart, go to www.coursesmart.com.

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Instructor Supplements

Assurance of Learning Ready


Many educational institutions today are focused on the notion of assurance of learning, an important element of some accreditation standards. *Managerial Accounting*, 15e, is designed specifically to support your assurance of learning initiatives with a simple, yet powerful, solution.

Each test bank question for *Managerial Accounting*, 15e, maps to a specific chapter learning outcome/objective listed in the text. You can use our test bank software, EZ Test, to easily query for learning outcomes/objectives that directly relate to the learning objectives for your course. You can then use the reporting features of EZ Test to aggregate student results in similar fashion, making the collection and presentation of assurance of learning data simple and easy.

AACSB Statement

The McGraw-Hill Companies, Inc., is a proud corporate member of AACSB International. Recognizing the importance and value of AACSB accreditation, we have sought to recognize the curricula guidelines detailed in AACSB standards for business accreditation by connecting selected questions in *Managerial Accounting*, 15e, to the general knowledge and skill guidelines found in the AACSB standards. The statements contained in *Managerial Accounting*, 15e, are provided only as a guide for the users of this text. The AACSB leaves content coverage and assessment clearly within the realm and control of individual schools, the mission of the school, and the faculty. The AACSB does also charge schools with the obligation of doing assessment against their own content and learning goals. While *Managerial Accounting*, 15e, and its teaching package make no claim of any specific AACSB qualification or evaluation, we have, within *Managerial Accounting*, 15e, labeled selected questions according to the six general knowledge and skills areas. The labels or tags within *Managerial Accounting*, 15e, are as indicated. There are, of course, many more within the test bank, the text, and the teaching package which might be used as a “standard” for your course. However, the labeled questions are suggested for your consideration.

McGraw-Hill Connect Accounting

 McGraw-Hill *Connect Accounting* offers a number of powerful tools and features to make managing your classroom easier. *Connect Accounting* with Garrison 15e offers enhanced features and technology to help both you and your students make the most of your time inside and outside the classroom. See page xix for more details.



Online Learning Center (www.mhhe.com/garrison15e)

The password protected instructor side of the book's Online Learning Center (OLC) houses all the instructor resources you need to administer your course, including:

- Solutions Manual
- Instructor's Manual
- Test bank
- Instructor PowerPoint slides

If you choose to use *Connect Accounting* with Garrison, you will have access to these same resources via the Instructor Library.

EZ Test Online

Available on the Instructor's OLC and within the *Connect* Instructor Library.

McGraw-Hill's EZ Test Online is a flexible electronic testing program. The program allows instructors to create tests from book-specific items. It accommodates a wide range of question types, plus instructors may add their own questions and sort questions by format. EZ Test Online can also scramble questions and answers for multiple versions of the same test.

Instructor's Manual

Available on the Instructor's OLC and within the *Connect* Instructor Library.

Extensive chapter-by-chapter lecture notes help with classroom presentations and contain useful suggestions for presenting key concepts and ideas. This manual is coordinated with the PowerPoint slides, making lesson planning even easier.

Solutions Manual


Available on the Instructor's OLC and within the *Connect* Instructor Library.

This supplement contains completely worked-out solutions to all assignment material. In addition, the manual contains suggested course outlines and a listing of exercises, problems,

and cases scaled according to difficulty and estimated time for completion. Solutions to the Applying Excel feature are housed in the same location as the Solutions Manual and include the completed Excel forms.

Student Supplements

McGraw-Hill *Connect Accounting*

 McGraw-Hill *Connect Accounting* helps prepare you for your future by enabling faster learning, more efficient studying, and higher retention of knowledge. See pages xvii and for more details.

Online Learning Center

www.mhhe.com/garrison15e

The Online Learning Center (OLC) follows *Managerial Accounting* chapter by chapter, offering all kinds of supplementary help for you as you read.

The OLC includes the following resources to help you study more efficiently:

- Applying Excel Forms
- Online Quizzes

- Check Figures
- Student PowerPoint slides

If your instructor chooses to use *Connect Accounting* in this course, you will have access to these same resources via the Student Library.

Applying Excel

Forms available on the OLC and in the *Connect* Student Library. See page xx for more details.

Check Figures

Available on the OLC and in the *Connect* Student Library. These provide key answers for selected problems and cases.

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