



51A Middle Street, Newburyport, MA 01950

Phone: 800-588-7039

contact@bhfe.com

www.bhfe.com

Course Information

Course Title: *Essentials of Business Math*

#374924

Number of continuing education credit hours recommended for this course:

In accordance with the standards of the National Registry of CPE Sponsors, CPE credits have been granted based on a 50-minute hour.

CPA: 4 (Accepted in all states)

Sponsor numbers for states requiring sponsor registration

Florida Division of Certified Public Accountancy: 0004761 (Ethics #0011467)

Hawaii Board of Accountancy: 14003

New York State Board of Accountancy: 002146

Ohio State Board of Accountancy: CPE .51PSR

Pennsylvania Board of Accountancy: PX178025

Texas State Board of Accountancy: 009349

Course Description

Running a successful business requires a certain amount of familiarity with math. In the *Essentials of Business Math* course, we cover how to use math in a variety of applications, including data analysis, calculating interest, determining future values, and finding the amount of loan payments. We also show how to calculate price elasticity, determine a company's breakeven point, and develop a sales forecast. In addition, we cover the mechanics of producing charts in Excel, since this is useful for gaining a better understanding of data. In short, this course is designed for anyone who wants to learn more about their business with some basic mathematical analysis.

Course Content

Publication/Revision date: 4/1/2021.

Author: Steven M. Bragg, CPA.

Final exam (online): Twenty questions (multiple-choice).

Program Delivery Method: NASBA QAS Self-Study (interactive).

Subject Codes/Field of Study

NASBA (CPA): Finance.

Course Level, Prerequisites, and Advance Preparation Requirements

Program level: Overview.

Prerequisites: None.

Advance Preparation: None.

Learning Objectives

- Identify the priorities in the order of operations.
- Specify how the mean, median, and mode are derived.
- Describe the contents of the simple and compound interest formulas.
- Specify how to calculate markups and markdowns.
- Identify the circumstances under which elastic and inelastic demand are present, and how these circumstances can be altered.
- Recall how the contribution margin and margin of safety are calculated.
- Specify the formula for the sales mix variance.
- Describe the various methods for forecasting sales, and the advantages and disadvantages of each one.
- Specify the forecasting method that requires the use of a smoothing constant.
- Specify the information provided by a correlation coefficient.
- Recall the techniques used to calculate forecasting error.
- Recall the situations in which charts are a good tool for data interpretation.
- Specify the characteristics of a chart sheet.
- Identify the characteristics of the different types of charts.

Instructions for Taking This Course

- **Log in to your secure account at www.bhfe.com. Go to "My Account."**
- **You must complete this course within one year** of purchase (If the course is "Expired," contact us and we will add the latest edition of the course to your account (no charge).
- **To retain the course-PDF after completion (for future reference) and to enable enhanced navigation:** From "My Account," Download and save the course-PDF to your computer. This will enable the search function (Menu: Edit>Find) and bookmarks (icon on left side of document window).
- **Complete the course by** following the learning objectives listed for the course, studying the text, and, if included, studying the review questions at the end of each major section (or at the end of the course).
- **Once you have completed studying the course** and you are confident that the learning objectives have been met, answer the final exam questions (online).

Instructions for Taking the Online Exam

- **Log in to your secure account at www.bhfe.com. Go to "My Account."**
- A passing grade of at least **70%** is required on the exam for this course.
- You will have three attempts to pass the exam (call or email us after three unsuccessful attempts for instructions).
- The exam is not timed, and it does not need to be completed in one session.
- For a printed copy of the exam questions, open the exam and press "Print Exam."
- Once you pass the exam, the results (correct/incorrect answers) and certificate of completion appear in "My Account." A confirmation email is also sent.
- CFP Board and IRS credit hours, if applicable, are reported on Tuesdays and at the end of the month.

Have a question? Call us at 800-588-7039 or email us at contact@bhfe.com.

About the Author

Steven Bragg, CPA, has been the chief financial officer or controller of four companies, as well as a consulting manager at Ernst & Young. He received a master's degree in finance from Bentley College, an MBA from Babson College, and a Bachelor's degree in Economics from the University of Maine. He has been a two-time president of the Colorado Mountain Club, and is an avid alpine skier, mountain biker, and certified master diver. Mr. Bragg resides in Centennial, Colorado. He has written more than 250 books and courses, including *New Controller Guidebook*, *GAAP Guidebook*, and *Payroll Management*.

Copyright © 2024 by AccountingTools, Inc. All rights reserved.

Published by AccountingTools, Inc., Centennial, Colorado.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without the prior written permission of the Publisher. Requests to the Publisher for permission should be addressed to Steven M. Bragg, 6727 E. Fremont Place, Centennial, CO 80112.

Limit of Liability/Disclaimer of Warranty: While the publisher and author have used their best efforts in preparing this book, they make no representations or warranties with respect to the accuracy or completeness of the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by written sales materials. The advice and strategies contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor author shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

Table of Contents

Chapter 1 - Business Math Basics	1
Introduction	1
Converting Fractions to Decimals	1
Converting Percents to Decimals – and Back	1
Percent Increases	2
Percent Decreases	2
Formula Essentials	3
The Order of Operations.....	4
Data Analysis	4
Frequency Distribution	5
The Mean, Median, and Mode	6
Standard Deviation	7
Variance Analysis	8
Summary	9
Review Questions.....	10
Chapter 2 - Interest and Related Topics	11
Introduction	11
Interest Essentials	11
Simple Interest.....	11
Calculating the Interest Rate on a Loan	12
Calculating Interest for a Partial Year.....	12
Ordinary Interest and Exact Interest	12
Solving for a Future Value.....	12
Solving for an Investment Return	13
Compound Interest	14
Solving for a Future Value.....	14
Effective vs. Nominal Interest Rate	15
Future Value of an Investment	15
The Rule of 69	16
The Rule of 72	17
Annuities.....	17
Future Value of an Annuity	18
Present Value of an Annuity	20
Present Value of an Annuity Due	20
Present Value of an Ordinary Annuity	21
Discounted Notes	22
Loan Payments	23
The Annual Percentage Rate	25
Summary	25
Review Questions.....	26
Chapter 3 - Markups and Markdowns	27
Introduction	27
Markups.....	27
Markdowns.....	28
Summary	28
Review Questions.....	29
Chapter 4 - Price Elasticity	30
Introduction	30
Elasticity of Demand.....	30
Factors Impacting Price Elasticity.....	32

Cross-Price Elasticity of Demand	32
Advertising Elasticity of Demand	33
Summary	33
Review Questions.....	34
Chapter 5 - Cost-Volume-Profit Analysis.....	35
Introduction	35
Contribution Margin.....	35
Breakeven Point	36
Margin of Safety.....	39
Cost-Volume-Profit Analysis	40
Sales Mix.....	42
Summary	43
Review Questions.....	44
Chapter 6 - Sales Forecasting	45
Introduction	45
Sales Forecasting Techniques	45
Base Forecast on Changes in Advance Bookings or Orders	45
Base Forecast on Growth Pattern.....	46
Base Forecast on Leading Indicators	46
Base Forecast on Ratios	47
Base Forecast on Share of Market	47
Base Forecast on Similar Products.....	48
Base Forecast on Replacement Rate	48
Base Forecast on Spending per Customer.....	48
Conduct a Customer Survey	49
Derive Information from Salespeople.....	49
Enhance Forecast Based on Price Elasticity	50
Extrapolate Historical Sales Patterns	50
Use Exponential Smoothing	52
Use Moving Averages.....	54
Use a Polynomial Trend Analysis	55
Use Qualitative Forecasts	56
Use Regression Analysis.....	56
Measuring Forecast Effectiveness.....	58
Summary	61
Review Questions.....	62
Chapter 7 - Charts.....	63
Introduction	63
Introduction to Charts.....	63
Chart Overview.....	63
Chart Sheets	66
Chart Creation Steps	67
Types of Charts.....	70
Area Charts.....	72
Column Charts.....	73
Bar Charts.....	74
Funnel Charts	75
Line Charts	75
Map Charts	76
Pareto Charts	77
Pie Charts	78
Radar Charts	79
Stock Charts	80
XY Charts.....	80

Summary	81
Review Questions.....	82
Answers to Chapter Questions	83
Glossary	87
Index	89