Business Math is a business course designed to prepare students for roles as entrepreneurs, producers, and business leaders by developing abilities and skills that are part of any business environment. A solid understanding of math including advanced algebra, basic geometry, statistics and probability provides the necessary foundation for students interested in careers in business and skilled trade areas. The content includes mathematical operations related to accounting, banking and finance, marketing, and management. Instructional strategies should include simulations, guest speakers, tours, Internet research, and business experiences.

- DOE Code: 4512
- Recommended Grade Level: 10, 11
- Recommended Prerequisite: Algebra I
- Credits: 2 semester course, 1 credit per semester, maximum of 2 credits
- Counts as an Elective or Directed elective for all diplomas
- Fulfills a Mathematics requirement for the General diploma only
- Qualifies as a quantitative reasoning course

**Career and Technical Student Organizations (CTSOs)**

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in Business Professional of America, DECA, or Future Business Leaders of America, the CTSOs for this area.

**Content Standards**

**Domain – Math Concepts**

**Core Standard 1** Students demonstrate the knowledge and skills necessary to determine the correct algebraic process to solve problems for a variety of business situations.

**Standards**

- BMH-1.1 Reinforce basic math skills, such as but not limited to percents, decimals, and fractions, and algebraic skills of solving equations with one or two variables
- BMH-1.2 Select and use appropriate formulas to solve problems
- BMH-1.3 Construct and solve an equation for a given problem using units
- BMH-1.4 Determine if a solution to an algebraic computation is reasonable
- BMH-1.5 Use algebraic graphs in real world situations
- BMH-1.6 Apply complex functions to business financials

**Core Standard 2** Students apply geometry principles to solve problems for a variety of business situations.

**Standards**

- BMH-2.1 Demonstrate ability to take measurements and convert as needed
- BMH-2.2 Use formulas and geometric reasoning necessary for area, perimeter, circumference, diameter, and volume
BMH-2.3  Determine if a solution to a geometry computation is reasonable

**Core Standard 3** Students analyze and interpret data using common probability and statistical procedures to solve problems for a variety of business situations.

**Standards**
BMH-3.1  Construct, read, and interpret tables, charts, and graphs
BMH-3.2  Use probability concepts to predict events
BMH-3.3  Construct and interpret frequency distribution
BMH-3.4  Calculate measures of range and central tendency (e.g., mean, median, mode)
BMH-3.5  Determine if a solution to probability and statistical computation is reasonable

**Domain – Accounting Principles**

**Core Standard 4** Students apply math concepts to analyze and solve problems related to accounting principles for business.

**Standards**
BMH-4.1  Calculate equity using the accounting equation
BMH-4.2  Calculate and plan for taxes including, sales, income, and property
BMH-4.3  Calculate cost of goods sold, gross profit, operating expenses, and net profit
BMH-4.4  Determine cost of goods sold using different inventory valuation methods (e.g., LIFO, FIFO)
BMH-4.5  Calculate manufacturing costs and break-even point
BMH-4.6  Calculate and plan for a variety of expenses
BMH-4.7  Calculate company or department overhead based on various situations (e.g., sales or floor space)
BMH-4.8  Calculate depreciation of assets using various methods (e.g., declining-balance method, sum-of-the-years method)
BMH-4.9  Compare the costs of renting, leasing, or buying plant or current assets

**Core Standard 5** Students apply math concepts to analyze and solve problems related to payroll for business.

**Standards**
BMH-5.1  Calculate and maintain employee payroll records
BMH-5.2  Calculate employee and employer taxes and prepare related reports
BMH-5.3  Calculate fringe benefits and analyze their effect on the total wage package
BMH-5.4  Analyze costs of recruiting, placing, and training employees

**Domain – Banking and Financial Services**

**Core Standard 6** Students apply math concepts to analyze and solve problems related to banking services for business.

**Standards**
BMH-6.1  Maintain checking account records (e.g. checks, check register, and deposit slips)
BMH-6.2  Show a reconciliation of a bank statement
BMH-6.3  Compare and contrast different financial institutions and their services
Assess data from the stock markets used in making investment decisions
Core Standard 7 Students apply math concepts to analyze and solve problems related to the principles of business finance.

Standards
BMH-7.1 Calculate various types of interest, (e.g., simple, compound, variable, exact, or ordinary)
BMH-7.2 Calculate the costs associated with installment purchases
BMH-7.3 Compare cash price to installment price in order to make a purchasing decision
BMH-7.4 Compute the monthly payment, interest, and total amount required to amortize a loan (e.g. mortgage)
BMH-7.5 Compare and contrast benefits and cost of long-term debt options for promissory notes and bonds
BMH-7.6 Compare and contrast benefits and costs of investment options (e.g. money-markets, CD’s, stocks, bonds)
BMH-7.7 Understand and calculate present value and future value
BMH-7.8 Determine the finance charges on credit card balances
BMH-7.9 Compare and contrast the advantages and disadvantages of employee credit card use for business expenses
BMH-7.10 Compare and contrast the advantages and disadvantages of offering credit to customers

Domain – Marketing Principles
Core Standard 8 Students apply math concepts to analyze and solve problems related to marketing principles for business.

Standards
BMH-8.1 Compare and contrast expenses associated with various advertising mediums
BMH-8.2 Compute extensions, subtotals, sales tax, and sales totals for a sales transaction
BMH-8.3 Compute markup or markdown
BMH-8.4 Calculate and analyze different types of trade discounts
BMH-8.5 Calculate the response rate and results of surveys
BMH-8.6 Analyze demographic information to make sound marketing decisions
BMH-8.7 Using trend data and forecasting models, calculate future sales
BMH-8.8 Calculate and analyze market share
BMH-8.9 Plan and design various displays for products with different size and shape requirements

Domain – Management Principles
Core Standard 9 Students apply math concepts to analyze and solve problems related to management principles.

Standards
BMH-9.1 Interpret financial statements to make sound managerial decisions
BMH-9.2 Create and analyze budgets
BMH-9.3 Calculate inventory balances and stock reorder points
BMH-9.4 Calculate necessary ratios to make sound managerial decisions
BMH-9.5 Calculate the cost of full-time versus part-time employees
BMH-9.6 Compare and contrast the different types and costs relating to insurance (e.g. property, automobile, bonding)

**Domain – Communication**

**Core Standard 10** Students develop skills to create and present accurate and effective communication for specific business related purposes and audiences.

**Standards**

BMH-10.1 Use clear and legible handwriting in all written work and communication
BMH-10.2 Demonstrate active listening skills
BMH-10.3 Use discussion skills to assume leadership and participant roles
BMH-10.4 Use research, composition, and oral skills to present information for a variety of situations utilizing appropriate technology
BMH-10.5 Work cooperatively with peers and authority figures
BMH-10.6 Use clear and concise writing skills to describe, explain, and inform various audiences
BMH-10.7 Follow and interpret directions, graphs, charts and diagrams found in technical writing
BMH-10.8 Use appropriate industry terminology