

# Idaho PTE Business Education Course with Essential Learning Outcomes and Learning Indicators

Course Title	BUSINESS MATH		
SDPTE Course ID	BE 0180	IBED	IBED 02154

A course designed to provide students with an understanding of essential business mathematical concepts. Basic math and algebraic operations as well as statistical procedures are used to analyze and solve realistic business and money management problems.

Term	Semester/Trimester/Year	Preq	None
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Notes:

## Computation *Comp\_1: Demonstrate Knowledge of Mathematical Foundations for All Computational Skills and Concepts*

### Comp\_1.1 Apply basic mathematical operations to solve problems.

Learning Indicator: Comp_1.1.1	Determine the correct mathematical process to use for various problem situations and use formulas when appropriate
Learning Indicator: Comp_1.1.2	Select and use appropriate tools when solving problems (e.g., paper, pencil, manipulatives, calculators, computer numerical keypad, and spreadsheets)
Learning Indicator: Comp_1.1.3	Define and use appropriate mathematical symbols for given problems
Learning Indicator: Comp_1.1.4	Round numbers for estimation and other purposes
Learning Indicator: Comp_1.1.5	Estimate and then calculate answers to problems using addition, subtraction, multiplication, and division
Learning Indicator: Comp_1.1.6	Compare computed result with estimated result to determine the reasonableness of the solution
Learning Indicator: Comp_1.1.7	Explain relationships between mathematical processes
Learning Indicator: Comp_1.1.8	Communicate understanding of problems through oral and written assessment

## Computation *Comp\_2: Demonstrate Knowledge of Number Relationships and Operations*

### Comp\_2.1 Solve problems containing whole numbers, decimals, fractions, percents, ratios, and proportions.

Learning Indicator: Comp_2.1.1	Solve problems that involve whole numbers, decimals, and fractions including use of appropriate conversions when necessary (e.g., fractions to decimals or decimals to fractions)
Learning Indicator: Comp_2.1.2	Solve problems that involve percents, ratios, and proportions including use of appropriate conversions when necessary (e.g., decimals to percents, percents to decimals, or ratios to percents)

## Computation *Comp\_3: Demonstrate Knowledge of Patterns, Functions, and Algebra*

### Comp\_3.1 Use algebraic operations to solve problems.

Learning Indicator: Comp_3.1.1	Recognize, describe, and predict patterns of data
Learning Indicator: Comp_3.1.2	Construct and solve an algebraic equation for a given problem
Learning Indicator: Comp_3.1.3	Solve for the unknown variable in an equation
Learning Indicator: Comp_3.1.4	Apply the order of operations principle when using mathematical processes
Learning Indicator: Comp_3.1.5	Identify multiple applications for using algebraic equations to solve problems

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## Computation *Comp\_4: Demonstrate Knowledge of Measurements*

### Comp\_4.1 Use common international standards of measurement in solving problems.

Learning Indicator: Comp_4.1.1	Identify standard American units of measurement and show relationships (e.g., length, volume, weight, currency, and time)
Learning Indicator: Comp_4.1.2	Identify standard metric units of measurement and show relationships (length, volume, and weight)
Learning Indicator: Comp_4.1.3	Determine units of time and show relationships (e.g., days to months, elapsed time, or interest conversion periods)
Learning Indicator: Comp_4.1.4	Identify currency measurements for countries other than U.S.
Learning Indicator: Comp_4.1.5	Solve problems using various types of measurements (e.g., ruler and yard stick)
Learning Indicator: Comp_4.1.6	Estimate and convert American units of measurements (length, volume, and weight) to metric measurements and vice versa
Learning Indicator: Comp_4.1.7	Estimate and convert the American dollar to the currency of other countries and vice versa

## Computation *Comp\_5: Demonstrate Knowledge of Statistics and Probability*

### Comp\_5.1 Analyze and interpret data using common statistical procedures.

Learning Indicator: Comp_5.1.1	Construct, read, and interpret tables, charts, and graphs
Learning Indicator: Comp_5.1.2	Make inferences about data from tables, charts, and graphs
Learning Indicator: Comp_5.1.3	Estimate and calculate measures of central tendency (mean, median, mode)
Learning Indicator: Comp_5.1.4	Use probability concepts to represent and solve problems involving uncertainty
Learning Indicator: Comp_5.1.5	Calculate frequency distributions
Learning Indicator: Comp_5.1.6	Calculate standard deviations

## Computation *Comp\_6: Demonstrate Knowledge of Problem-Solving Applications*

### Comp\_6.1 Use mathematical terminology and procedures to analyze and solve business problems for such areas as taxation.

Learning Indicator: Comp_6.1.1	Compute individual income taxes
Learning Indicator: Comp_6.1.2	Calculate property tax, assessed value, or the tax rate when one of the three variables is unknown

### Comp\_6.2 Use mathematical procedures to analyze and solve business problems for savings and investment.

Learning Indicator: Comp_6.2.1	Calculate the purchase price of a stock transaction
Learning Indicator: Comp_6.2.2	Compute compound interest and the resulting compound amount at the maturity date for savings and investments
Learning Indicator: Comp_6.2.3	Calculate price of a bond given a recent bond quotation
Learning Indicator: Comp_6.2.4	Compute rates of return for various instruments and compare to make decisions
Learning Indicator: Comp_6.2.5	Calculate the amount, compound interest, and present value for a simple annuity
Learning Indicator: Comp_6.2.6	Determine and verify periodic payment required to finance a sinking fund and prepare a sinking fund schedule
Learning Indicator: Comp_6.2.7	Determine total amount deposited and interest earned on a sinking fund

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Learning Indicator: Comp\_6.2.8 Determine periodic payment, interest, and total amount required to pay to amortize a loan (e.g., mortgage)

Learning Indicator: Comp\_6.2.9 Prepare a simplified amortization schedule

Learning Indicator: Comp\_6.2.10 Calculate earnings per share

Learning Indicator: Comp\_6.2.11 Determine current yield on a bond

## Comp\_6.3 Use mathematical procedures to analyze and solve business problems for payroll records.

Learning Indicator: Comp\_6.3.1 Calculate gross earnings (e.g., salary, hourly rate, commission, or production)

Learning Indicator: Comp\_6.3.2 Calculate payroll withholdings, other deductions, and net earnings

Learning Indicator: Comp\_6.3.3 Maintain payroll register and individual earnings record

Learning Indicator: Comp\_6.3.4 Complete the employer's quarterly federal tax return, which includes the calculations for employee and employer taxes

## Comp\_6.4 Use mathematical procedures to analyze and solve business problems for cash management.

Learning Indicator: Comp\_6.4.1 Maintain check records (e.g., check register and deposit slips)

Learning Indicator: Comp\_6.4.2 Calculate income and expenses for a given time period

Learning Indicator: Comp\_6.4.3 Calculate fixed and variable costs, analyze data, and estimate the projected total income and total expenses for a given time period

Learning Indicator: Comp\_6.4.4 Reconcile the bank statement with the check register

Learning Indicator: Comp\_6.4.5 Reconcile and replenish a petty cash fund and a cash drawer

## Comp\_6.5 Use mathematical procedures to analyze and solve business problems for financial statements.

Learning Indicator: Comp\_6.5.1 Calculate net sales, cost of goods sold, gross profit, operating expenses, and net profit for the income statement

Learning Indicator: Comp\_6.5.2 Calculate total assets, liabilities, and owner's equity for the balance sheet

Learning Indicator: Comp\_6.5.3 Calculate the cash flow and determine cash sufficiency for a given period of time

Learning Indicator: Comp\_6.5.4 Calculate the change in equity for the statement of change of owner's equity or retained earnings statement

Learning Indicator: Comp\_6.5.5 Calculate the distribution of profit/loss to the proprietor, partners, or stockholders

## Comp\_6.6 Use mathematical procedures to analyze and solve business problems for credit management.

Learning Indicator: Comp\_6.6.1 Using the simple interest equation  $I=PRT$ , solve for one of the variables and find maturity value

Learning Indicator: Comp\_6.6.2 Calculate the bank discount and the proceeds on a discounted note

Learning Indicator: Comp\_6.6.3 Determine the outstanding amount for installment purchases

Learning Indicator: Comp\_6.6.4 Determine the finance/additional charges, the periodic payment, the total cost, and the APR on an installment contract

Learning Indicator: Comp\_6.6.5 Compare cash price to installment price in order to make a purchase decision

Learning Indicator: Comp\_6.6.6 Calculate the effects of early payoff of an installment plan

Learning Indicator: Comp\_6.6.7 Calculate the present value of a simple interest loan

## Comp\_6.7 Use mathematical procedures to analyze and solve business problems for purchases.

Learning Indicator: Comp\_6.7.1 Calculate the total purchase price given the number of units and unit price

Learning Indicator: Comp\_6.7.2 Calculate the net business purchases with discounts and purchase returns and allowances

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## Comp\_6.8 Use mathematical procedures to analyze and solve business problems for sales.

Learning Indicator: Comp_6.8.1	Determine the dollar amount of cost, markup, or sales price when one of the three variables is unknown
Learning Indicator: Comp_6.8.2	Determine the dollar amount of markdown, regular selling price, or reduced price when one of the three variables is unknown
Learning Indicator: Comp_6.8.3	Calculate the total sales and the sales tax for a sales transaction
Learning Indicator: Comp_6.8.4	Compute net sales with sales/returns allowances and sales discount
Learning Indicator: Comp_6.8.5	Compute the percent of markup when based on the cost or when based on the selling price
Learning Indicator: Comp_6.8.6	Compute the percent of markdown given the regular selling price and the reduced price
Learning Indicator: Comp_6.8.7	Calculate the operating profit or loss, the absolute loss, and the breakeven point

## Comp\_6.9 Use mathematical procedures to analyze and solve business problems for inventory records.

Learning Indicator: Comp_6.9.1	Determine inventory valuation according to different plans (e.g., LIFO, FIFO, specific identification, and weighted average)
Learning Indicator: Comp_6.9.2	Determine cost of goods sold for a given period using different inventory valuation methods
Learning Indicator: Comp_6.9.3	Determine gross profit for a given period using different inventory valuation methods

## Comp\_6.10 Use mathematical procedures to analyze and solve business problems for depreciation, cost recovery, and depletion.

Learning Indicator: Comp_6.10.1	Calculate the depletion of natural resources
Learning Indicator: Comp_6.10.2	Calculate book value

## Entrepreneurship Entr\_1: Demonstrate Knowledge of Entrepreneurship Characteristics

### Entr\_1.4 Apply the steps in the problem-solving process to solve actual and potential business problems.

Learning Indicator: Entr_1.4.1	Apply the steps in the problem-solving process
Learning Indicator: Entr_1.4.2	Generate alternative solutions to a given problem
Learning Indicator: Entr_1.4.3	Utilize the problem-solving process to resolve a business problem
Learning Indicator: Entr_1.4.4	Given a business dilemma for a consumer, identify the problem and analyze possible solutions
Learning Indicator: Entr_1.4.5	Identify potential problems facing a planned business
Learning Indicator: Entr_1.4.6	Develop contingency plans for solving identified problems

## International Business IntB\_5: Demonstrate Knowledge of International Finance and Risk Management

### IntB\_5.1 Explain the role, importance, and concepts of international currency and exchange in the market.

Learning Indicator: IntB_5.1.1	Define basic terms, such as currency and currency exchange
Learning Indicator: IntB_5.1.2	List the currencies of various countries
Learning Indicator: IntB_5.1.3	Calculate simple currency exchange transactions
Learning Indicator: IntB_5.1.4	Explain how currency exchange rates affect companies
Learning Indicator: IntB_5.1.5	Identify potential problems of dealing in foreign currencies

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Learning Indicator: IntB_5.1.6	Describe how economic conditions, balance of payment situations, and political issues affect currency values
Learning Indicator: IntB_5.1.7	Distinguish between currencies (e.g., hard vs. soft, convertible vs. non-convertible)

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