



El Camino College
COURSE OUTLINE OF RECORD – Approved

I. GENERAL COURSE INFORMATION

Subject and Number: Business 15
Descriptive Title: Business Mathematics
Course Disciplines: Business Accounting or Management and Business
Division: Business

Catalog Description:

This course is designed to prepare students for mathematical concepts involving quantitative reasoning and analysis in management, finance, accounting, real estate, and other areas of business. The course content involves a thorough study of all aspects of business mathematics including computational skills, percentages, bank reconciliation, use of business formulas and equations, payroll, discounts, and markup/markdowns, simple and compound interest, present values analysis, annuities and sinking funds, credit, depreciation and inventory, payroll taxes, promissory notes, insurance, financial reports, and business statistics.

Conditions of Enrollment:

Prerequisite: Mathematics 40 or qualification by appropriate assessment

Recommended Preparation: eligibility for English 84 or qualification by appropriate assessment

Course Length:	X Full Term	Other (Specify number of weeks):
Hours Lecture:	3.00 hours per week	TBA
Hours Laboratory:	0 hours per week	TBA
Course Units:	3.00	

Grading Method: Both

Credit Status: Associate Degree Credit

Transfer CSU: No

Transfer UC: No

General Education:

El Camino College:

CSU GE:

B4 - Mathematics/Quantitative Thinking

Term:

Other:

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. SLO #1 Word Problems into Equations
Interpret and convert word problems into equations, solve mathematical equations, and produce/interpret results in numerical or graphical form.
2. SLO #2 Algebraic Formulas
Utilize tables and algebraic formulas to perform calculations necessary to determine business, financial, and contractual obligations.
3. SLO #3 Procedures and Reports
Explain basic accounting procedures and prepare accounting reports and basic financial statements.
4. SLO #4 Business Statistics
Calculate and interpret statistical data and apply them to business decision making processes.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at <http://www.elcamino.edu/academics/slo/>.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Convert business problems into equations and solve using addition, subtraction, multiplication, and division, fractions, decimals, and percentages.
 - Homework Problems
2. Prepare and reconcile bank statements and checking accounts.
 - Objective Exams
3. Analyze the payroll process and functions, and calculate gross pay, net pay, and employers' payroll taxes.
 - Homework Problems
4. Differentiate between the various discounts including trade, cash, markups, and markdowns. Assess the role of market forces that impact these types of business transactions.
 - Homework Problems
5. Calculate simple interest, promissory notes, payments, and the discount process, compound interest, future value, present value, ordinary annuity, annuity due, and sinking funds by using tables and algebraic formulas.
 - Homework Problems
6. Calculate principal, interest, payments, amortizations, annual percentage rate (APR) for real estate installment loans and credit card transactions.
 - Homework Problems

7. Prepare and use interest tables for amortization loans.
 - Homework Problems
8. Evaluate, compare, and determine the true cost of various types of loans.
 - Objective Exams
9. Compare the advantages and disadvantages of home ownership.
 - Objective Exams
10. Analyze, interpret, discuss, and prepare financial statements.
 - Homework Problems
11. Analyze, interpret, explain, and calculate stock and bond quotations, price-earnings (P/E) ratios, dividend yields, bond yields, and earnings per share (EPS).
 - Homework Problems
12. Examine the concept of depreciation and calculate different methods of depreciation including straight-line, accelerated cost recovery systems (ACRS) and modified accelerated cost recovery systems (MACRS).
 - Homework Problems
13. Calculate the ending inventory by last in first out (LIFO), first in first out (FIFO), weighted averages, specific identifications, gross profits and retail methods.
 - Homework Problems
14. Differentiate and calculate the various forms of taxation such as income, sales, property, and excise.
 - Homework Problems
15. Differentiate between the various types of insurances such as life, casualty, disability, and automobile.
 - Homework Problems
16. Perform calculations necessary to measure the mean, median, and mode.
 - Homework Problems
17. Analyze and interpret the forms of a graph such as bar, line, and circle.
 - Homework Problems

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	2	I	Foundational Mathematical Concepts and Business Applications A. Numeric knowledge, number sense, measurement, and computation B. Dissecting and solving word problems C. Common applications of math in business D. Developing formulas from word problems
Lecture	4	II	Applications of Concepts A. Procedures for conversion B. Decimal solution methods C. Banking and the checking account D. Bank statement reconciliation process

Lecture	3	III	Solution Methods for the Unknown A. Solving for the unknown B. Algebraic equations C. Word Problems and algebraic solutions D. Order of operations
Lecture	3	IV	Percentages and Their Applications A. Conversions B. Application of percentages – portion formula C. Solving for percentage rate D. Solving for percentage decrease
Lecture	3	V	Discounts: Trade and Cash A. Trade discounts – Single and chain B. Cash discounts, credit terms, and partial payments C. Net price equivalent rate calculation D. Single equivalent discount rate calculation E. Credit terms and credit due calculations
Lecture	3	VI	Pricing Calculations: A. Markup on Cost B. Markup on selling prices C. Markdown calculations D. Price calculations for perishables E. Breakeven calculation and analysis F. Formulas for converting between percent markup on cost to percent markup on selling price G. Contribution margin calculation
Lecture	3	VII	Payroll A. Calculations for employee gross pay B. Overtime calculations C. Piece rate pay calculations D. Differential pay schedule calculations E. Commission, variable commission, and draw calculations F. Computations for payroll deductions on employees' pay
Lecture	3	VIII	Simple Interest A. Calculation of simple interest and maturity value B. Solving for principal C. Solving for interest rate D. Solving for time E. Financial impact of partial note payments before due date
Lecture	1.5	IX	Promissory Notes, Simple Discount Notes, and the Discount Process A. Simple discount note and simple interest formula B. The discount process for an interest-bearing note before maturity C. Maturity value formula D. Discount rate and effective rate calculations
Lecture	1.5	X	Compound Interest and Present Value A. Compound interest B. Future value

			<ul style="list-style-type: none"> C. Present value (discount value) D. Nominal versus Effective Rate Calculations E. Compounding methods
Lecture	3	XI	Annuities and Sinking Funds <ul style="list-style-type: none"> A. Annuities B. Ordinary annuity calculations C. Annuity due calculations D. Present value of an ordinary annuity E. Sinking funds
Lecture	3	XII	Installment & Revolving Loans <ul style="list-style-type: none"> A. Cost of installment credit B. Cost of revolving credit C. Average daily balance calculation D. The cost of home ownership E. Types of mortgages F. Monthly mortgage payment calculation G. Amortization schedules
Lecture	3	XIII	Financial Reports <ul style="list-style-type: none"> A. Balance sheet B. Solving for owners' equity C. Vertical analysis D. Income statement E. Solving for gross profit, operating profit, and net profit F. Trend and ratio analysis
Lecture	3	XIV	Depreciation <ul style="list-style-type: none"> A. Straight-line method B. Units of production method C. Declining balance method D. Adjustment for modified accelerated cost recovery system (MACRS) and ACRS E. Depreciation and remaining value calculations F. Depreciation for partial years calculation
Lecture	3	XV	Inventory and Overhead <ul style="list-style-type: none"> A. Specific identification B. Weighted Average C. LIFO/FIFO D. Calculating gross profit from LIFO versus FIFO E. Retail Method versus Gross Profit Method F. Inventory Turnover calculations G. Distribution of Overhead
Lecture	1.5	XVI	Sales, Excise, and Property Taxes <ul style="list-style-type: none"> A. Sales and Excise Tax calculations B. Property Tax calculations C. Assessed value calculations
Lecture	3	XVII	Insurance <ul style="list-style-type: none"> A. Life, Fire, and Auto Insurance B. Risk calculations and basic actuarial principles C. Premium calculation D. Short rate and cancellation refund calculations

			E. Coinsurance calculations
Lecture	3	XVIII	Investments A. Stocks, Bonds, and Mutual Funds B. Return calculations and other investment analysis C. PE Ratios D. Earnings per share calculations E. Return on investment analysis F. Bond yield calculations G. Net asset value calculation
Lecture	4.5	XIX	Business Statistics A. Mean, median, mode B. Frequency distribution, and graphs C. Standard deviation D. Variance E. Range F. Other measures of dispersion G. Index numbers and price relative
Total Lecture Hours		54	
Total Laboratory Hours		0	
Total Hours		54	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION:

Problem solving demonstrations (computational or non-computational)

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:

Dollar Dress Shop's inventory at cost on January 1 was \$82,800. Its retail value is \$87,500. During the year, Dollar purchased additional merchandise at a cost of \$300,000 with a retail value of \$325,000. The net sales at retail for the year were \$295,000. Produce a report (1-2 pages) illustrating the calculation of Dollar's inventory at cost by the retail method, and round the cost ratio to the nearest whole percent.

C. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:

1. Given the balance sheet for True Corporation (provided to student along with other pertinent information), produce a report (1-2 pages) detailing for following calculations: 1) the current ratio, 2) the acid test ratio, 3) the average day's collections, 4) the asset turnover, 5) the inventory turnover, 6) the debt ratio. Provide an analysis based on the results and include this summary in the report.

2. The Muffin Shop makes no-fat blueberry muffins that cost \$.70 each. The Muffin Shop knows that 15% of the muffins will spoil. Produce a report (1-2 pages) indicating the price and strategy if the Muffin Shop wants 40% markup on cost and produces 800 muffins.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Other exams
Quizzes
Homework Problems
Multiple Choice

V. INSTRUCTIONAL METHODS

Demonstration
Lecture
Other (please specify)
Class participation

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Answer questions
Skill practice
Required reading
Problem solving activities

Estimated Independent Study Hours per Week: 6

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Jeffrey Slater, Sharon M. Wittry. Practical Business Math Procedures. 12th ed. McGraw-Hill Education, 2017.

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Course Prerequisite Mathematics-40	Other (please Specify) CSU Requirement for qualification as Area B4 GE

B. Requisite Skills

Requisite Skills
Manipulate algebraic expressions, including expressions with fractions and radicals. MATH 40 - Use the properties of the real numbers to evaluate, simplify, and factor algebraic expressions, including expressions with fractions and radicals.
Solve quadratic equations and systems of linear equations. MATH 40 - Set up and solve application problems using linear equations and inequalities, systems of two linear equations with two variables, and quadratic equations.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
Non-Course Recommended Preparation eligibility for English 84	To successfully interpret common business problems, the student must be able to read with comprehension at an average speed. Determined through placement test or course work.

D. Recommended Skills

Recommended Skills
<p>Ability to read at an average speed with comprehension.</p> <p>ENGL 82 - Utilize prior knowledge and experience to construct meaning at a literal level of a given text.</p> <p>ENGL 82 - Identify at the paragraph level the topic sentence, supporting details, transitions and patterns of organization of short reading selections.</p> <p>ENGL 82 - Expand vocabulary through use of dictionary, study of word parts, and skilled use of context clues.</p> <p>ENGL 82 - Discuss elements of a book-length text orally or by means of journals, summaries or compositions.</p> <p>ENGL 82 - Employ basic study skills and reading strategies to explain at the literal level the content of a text.</p> <p>ENGL 82 - Employ basic critical thinking skills such as distinguishing fact from opinion, making valid inferences, and formulating implied main ideas.</p>

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact
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Course created by William L. Davies on 07/01/1973.

BOARD APPROVAL DATE:

LAST BOARD APPROVAL DATE: 05/21/2019

Last Reviewed and/or Revised by Melissa Som de Cerff

Date: 4/3/2019

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