

DELAWARE TECHNICAL & COMMUNITY COLLEGE
COLLEGEWIDE COURSE SYLLABUS



Campus: Terry

Department: Mathematics

Course Number and Title: MAT 150 – Business Mathematics

Instructor Name:

Telephone:

E-mail:

Prerequisites: MAT 012 or required math score on College Placement Test

Corequisites: None

Course Hours and Credits: 3:0:3

Course Description: This foundation course in business mathematics includes a study of percentage problems, simple and compound interest, bank reconciliations, installment buying, present value, payroll, taxes, trade and cash discounts, markup and markdown, depreciation, tables and graphs, and amortization.

Required Text: Slater, Jeffrey, (2008). Practical Business Math Procedures (9th ed.). New York, NY: McGraw Hill Publishing.

Materials: Scientific calculator

Method of Instruction: Lecture

Manuals: None

Disclaimer: None

CORE COURSE PERFORMANCE OBJECTIVES

The student will be able to:

1. Solve application problems involving percents. (CCC 2, 7)
2. Perform calculations for a wholesale or retail business. (CCC 2, 6, 7)
3. Calculate gross pay for employees earning wages, salaries and commission. (CCC 2, 7)
4. Construct schedules of depreciation. (CCC 7)
5. Calculate simple and compound interest, present and maturity value. (CCC 2, 7)
6. Prepare reconciliation and amortization schedules. (CCC 7)
7. Prepare and analyze tables and graphs. (CCC 6, 7)

MEASURABLE PERFORMANCE OBJECTIVES

1. **Solve application problems involving percents. (CCC 2, 7)**
 - 1.1 Given a whole number, correctly round off the number to a given place value.
 - 1.2 Given two or more numbers, add the numbers correctly.
 - 1.3 Given two whole numbers, subtract the numbers correctly.
 - 1.4 Given applied problems concerned with addition and subtraction of whole numbers, solve the problems correctly.
 - 1.5 Given two or more whole numbers, multiply the numbers correctly.
 - 1.6 Given two whole numbers, divide the numbers correctly.
 - 1.7 Given applied problems (unit cost and total cost) concerned with multiplication and division of whole numbers, solve the problems correctly.
 - 1.8 Given problems concerned with whole numbers, use estimation to determine if a calculation is reasonable.
 - 1.9 Given two or more fractions, add the fractions correctly.
 - 1.10 Given two fractions, subtract the fractions correctly.
 - 1.11 Given two or more fractions or a whole number and a fraction, multiply the numbers correctly.
 - 1.12 Given two fractions or whole numbers and a fraction, divide the numbers correctly.
 - 1.13 Given applied problems dealing with fractions, solve the problems correctly.
 - 1.14 Given two or more decimal numbers, add the numbers correctly.

- 1.15 Given two decimal numbers, subtract the numbers correctly.
- 1.16 Given two decimal numbers, multiply the numbers correctly.
- 1.17 Given two decimal numbers, divide the numbers correctly.
- 1.18 Given applied problems dealing with decimal numbers, solve the problems correctly.
- 1.19 Given the necessary information concerning withdrawals and deposits, calculate a checkbook balance correctly.
- 1.20 Given the bank statement, checkbook balance, and information concerning outstanding checks, deposits in transit, charges, and payments, reconcile the bank statement correctly.
- 1.21 Given the basic percent equations, $P = B \times R$, use the equation to correctly solve problems dealing with percent.
- 1.22 Given the necessary information, correctly solve problems dealing with increase/decrease.
- 1.23 Given problems using ratios or percents to describe allocations, solve the problems correctly.
- 1.24 Given $\frac{R}{100} = \frac{P}{B}$, use the proportion to correctly solve problems dealing with percent.
- 1.25 Given the necessary information about a single discount rate, correctly solve problems concerning trade discounts.
- 1.26 Given the necessary information about two or more discount rates (a series discount or chain discount), correctly solve problems concerning trade discounts.
- 1.27 Given the list price, trade discount rate or rates (if any), and cash discount terms, correctly solve problems dealing with cash discounts.

2. Perform calculations for a wholesale or retail business. (CCC 2, 6, 7)

- 2.1 Given the necessary information concerning cost, selling price, amount of markup or method of pricing (markup based on cost/markup based on selling price), correctly solve problems dealing with pricing products.
- 2.2 Given the necessary information about markdown, selling price, regular price, or markdown rate, correctly solve problems dealing with markdown.
- 2.3 Given the necessary information about cost per unit, number of units, markup rate and life expectancy, correctly solve problems dealing with pricing perishable items.

- 2.4 Given information about the value of exports and imports for different countries, correctly calculate the balance of trade, and determine favorable or unfavorable status.
- 2.5 Given the number of units in a shipment, the value of the shipment and the schedule of duties, correctly determine the duty paid on the shipment.
- 2.6 Given a table of the exchange rates, correctly determine the value of one nation's currency in terms of another nation's currency.

3. Calculate gross pay for employees earning wages, salaries and commission. (CCC 2, 7)

- 3.1 Given information based on the 40-hour week, such as hourly rate and number of hours worked, use hourly wage method to correctly calculate the gross pay.
- 3.2 Given the necessary percent of commission, amount of sales, and type of commission (commission only, graduated, combination, or drawing account), use commission method to correctly calculate gross pay.
- 3.3 Given the rate per piece, number of pieces produced, number of defects (if any), and type of piecework plan (straight piecework or differential), use piecework method to correctly calculate the gross pay.

4. Construct schedules of depreciation. (CCC 7)

- 4.1 Given the original cost, trade-in/salvage value, and useful life/useful life in units of production, find the depreciation required and book value using the straight-line method of calculating depreciation.
- 4.2 Given the original cost, trade-in/salvage value and useful life, find the depreciation required and book value using the declining-balance method of calculating depreciation.
- 4.3 Given the original cost, trade-in/salvage value and useful life, find the depreciation required and book value using the sum-of-the-years-digits method of calculating depreciation.
- 4.4 Given the original cost and the necessary table, find the required depreciation and book value using the modified accelerated cost recovery system (MACRS) method of calculating depreciation.

5. Calculate simple and compound interest, present and maturity value. (CCC 2, 7)

- 5.1 Knowing the simple interest formula, $I = PRT$, and given three of the four variables in the formula, correctly solve problems dealing with simple interest.
- 5.2 Given the face value, time, and rate of interest, correctly calculate the maturity value of a promissory note.

5.3 Given the face value, time, and discount rate, correctly calculate the discount and/or proceeds for a simple discount note.

6. Prepare reconciliation and amortization schedules. (CCC 7)

6.1 Using the formula, $FV = PV \times \text{Compounding Factor}$, and Table 10.1, correctly determine the future value of an investment earning compound interest.

6.2 Using the formula, $CI = FV - PV$, and Table 10.1, correctly determine the interest earned on an investment earning compound interest.

6.3 Using the formula, $PV = FV \div \text{Compounding Factor}$, and Table 10.1, correctly determine the present value of an investment earning compound interest.

6.4 Given information that will yield the total finance charge and the amount financed, find the approximate APR using Table 12.1.

6.5 Given the cost/amount of loan and the installment terms, use formula $PMT = PV \div a_{n-i}$, and Table 11.2 to correctly calculate the monthly payment on an installment loan.

7. Prepare and analyze tables and graphs. (CCC 6, 7)

7.1 Given statistical data in graphical form (circle graph, bar graph, or line graph), read and interpret the data.

7.2 Given statistical information and using graph paper, present the data in graphical form.

EVALUATION CRITERIA

Students will demonstrate proficiency on all measurable performance objectives at least to the 75% level. Grades are in accordance with the College Grading System:

92 – 100	A
83 – 91	B
75 – 82	C
0 – 74	R

Students should refer to the Student Handbook for information on Academic Standing Policy, Academic Honesty Policy, Students Rights and Responsibilities and other policies relevant to their academic progress.