

**Course Description****MTB1103 | Business Mathematics | 3.00 credits**

Reviews the basic arithmetic processes and covers mathematics and computations used in business including cash and trade discounts, commissions, markup, markdown, depreciation, simple and compound interest and bank discounts, payroll records, taxes, insurance, inventory, analysis of financial statements, statistics (mean, median, and mode), charts and graphs, and consumer applications.

**Course Competencies:**

**Competency 1:** The student will be able to develop mastery of basic arithmetic by:

1. Reading, writing, and rounding numbers
2. Rounding numbers to indicate positions
3. Adding, subtracting, multiplying, and dividing whole numbers and decimals

**Competency 2:** The student will be able to understand the fundamental operations of fractions by:

1. Recognizing the three types of fractions
2. Converting improper fractions to whole or mixed numbers and mixed numbers to improper fractions
3. Converting fractions to lowest and highest terms
4. Showing the ability to add and subtract all types of fractions
5. Finding the least common denominator
6. Adding and subtracting mixed numbers with the same or different denominators
7. Multiplying and dividing proper, improper, and mixed numbers

**Competency 3:** The student will be able to show the ability to round fractions and decimal conversions by:

1. Explaining the place values of whole numbers and decimals
2. Converting decimal fractions to decimals, proper fractions to decimals, mixed numbers to decimals, and pure and mixed decimals to decimal fraction

**Competency 4:** The student will be able to show the ability to solve banking record problems related to deposits and bank reconciliations by:

1. Listing the steps to complete bank reconciliations
2. Preparing bank reconciliations

**Competency 5:** The student will be able to understand the fundamental principles of percentage, base, and rate by:

1. Calculating periods and credit periods that a business may offer
2. Calculating outstanding balance for partial payments

**Competency 7:** The student will be able to show the ability to solve problems related to markups and markdowns by:

1. Computing and calculating dollar markup and percent markup on cost
2. Computing and calculating selling price when you know the cost and percent markup on the cost
3. Computing cost when dollar markup and percent markup on cost are known
4. Calculating cost when you know the selling price and percent markup on cost
5. Computing and calculating dollar markup and percent markup on the selling price
6. Computing and calculating selling price when dollar markup and percent markup on selling price are known
7. Calculating selling price when cost and percent markup on selling price are known
8. Calculating cost when selling price and percent markup on selling price are known
9. Converting from percent markup on selling price to percent markup on cost and vice versa
10. Calculating markdowns, comparing markdowns and markups

**Competency 8:** The student will be able to solve problems related to payroll records, including gross pay, deductions, and net pay by:

Updated: Fall 2025

1. Comparing and contrasting weekly, biweekly, semimonthly, and monthly pay periods
2. Computing gross pay with overtime based on time
3. Computing gross pay for piecework, differential pay scales, straight commission, and salary plus commission
4. Explaining and calculating federal and state unemployment taxes

**Competency 9:** The student will be able to comprehend simple interest problems and find the balance due on a transaction involving partial payments by:

1. Calculating simple interest and maturity values for month and years
2. Calculating simple interest and maturity value by (a) exact interest, (b) ordinary interest
3. Applying the interest formula, calculating the unknown when the other two (principal, rate, or time) are given
4. Listing the steps to complete the U.S. Rule
5. Computing the proper interest credits under the U.S. Rule

**Competency 10:** The student will be able to solve promissory notes simple discount notes and, compute the effective rate, and solve discount problems using the operations of discounting by:

1. Differentiating between interest-bearing and noninterest-bearing notes
2. Calculating bank discount and proceeds for simple discount notes
3. Calculating and comparing the interest, maturity value, proceeds, and effective rate of a simple interest note with a simple discount note
4. Computing the maturity value, bank discount, and proceeds of discounting an interest-bearing note before maturity
5. Identifying and completing the four steps of the discounting process

**Competency 11:** The student will be able to solve compound interest and present value problems by:

1. Comparing simple interest with compound interest
2. Calculating the compound amount and interest manually and by table lookup
3. Explaining and computing the effective rate
4. Comparing present value with compound interest
5. Computing present value by table lookup

**Competency 12:** The student will be able to solve problems that deal with finance charges on items bought on the installment plan by:

1. Calculating and computing the amount financed, finance charge, and deferred payment
2. Computing the rebate and payoff for Rule 78 (Formula for calculating the unearned interest)
3. Calculating the finance charges on revolving charge credit card accounts

**Competency 13:** The student will be able to solve problems that deal with the cost of home ownership by:

1. Identifying the types of mortgages available
2. Utilizing an amortization chart to compute monthly mortgage payments
3. Calculating the total cost of interest over the life of a mortgage
4. Calculating and identifying the interest and principal portion of each monthly payment

**Competency 14:** The student will be able to solve problems related to depreciation using the most commonly used depreciation methods by:

1. Explaining the concept and causes of depreciation
2. Identifying the different types of depreciation methods
3. Calculating the different types of depreciation methods

**Learning Outcomes:**

- Use quantitative analytical skills to evaluate and process numerical data