

# Virginia Western Community College

## MTH 132

### Business Mathematics

#### Prerequisites

Competency in Math Essentials MTE 1-3 as demonstrated through the placement and diagnostic tests, or by satisfactorily completing the required MTE units or equivalent.

#### Course Description

Provides instruction, review, and drill in percentage, cash and trade discounts, mark-up, payroll, sales, property and other taxes, simple and compound interest, bank discounts, loans, investments, and annuities.

**Semester Credits: Lecture Hours: 3 Lab/Clinical/Internship Hours: 0**

#### Required Materials

##### Textbook:

Business Math. Cleaves, Hobbs, and Noble. 11th Edition. Pearson. ISBN: 9780134496434

##### Other Required Materials:

Microsoft Excel

#### Course Outcomes

At the completion of this course, the student should be able to:

<p><b>Goal 1: Communication and basic skills</b></p>	<ul style="list-style-type: none"> <li>• Solve application problems by interpreting the materials presented, including determining the nature and extent of the information needed, and present the answer in standard English.</li> <li>• Estimate and consider answers to mathematical problems in order to determine reasonableness.</li> <li>• Correctly calculate sums, differences, products and quotients of whole numbers, fractions and mixed numbers, and decimal numbers without the use of a calculator.</li> <li>• Perform basic calculator operations</li> <li>• Solve a formula for any specified variable.</li> <li>• Convert decimal numbers and fractions to and from percents.</li> </ul>
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<p><b>Goal 2: Banking applications</b></p>	<ul style="list-style-type: none"> <li>• Solve word problems using the basic percentage formula.</li> <li>• Identify the component parts of a check, check stub and deposit slip.</li> <li>• Perform simple banking transactions, rectify bank statements.</li> <li>• Calculate simple interest, compound interest and simple discount.</li> <li>• Use the formulas for maturity value and present value for simple interest loans.</li> <li>• Use tables to calculate present value and future value.</li> <li>• Find the monthly mortgage payment, interest and PITI and prepare a partial amortization schedule.</li> <li>• Calculate sales, property, loans with closed-end credit and open-end credit</li> </ul>
<p><b>Goal 3: Taxes</b></p>	<ul style="list-style-type: none"> <li>• Calculate Payroll, income taxes.</li> <li>• Calculate gross earnings based on salaries, commissions and wages.</li> <li>• Calculate overtime earnings for wages, salaries, and commissions.</li> <li>• Calculate State withholding taxes.</li> <li>• Calculate FICA and Medicare taxes for employees and self-employed individuals.</li> <li>• Calculate Federal withholding taxes using the wage bracket and percentage methods.</li> <li>• Calculate an employer's Federal Tax Liability.</li> </ul>
<p><b>Goal 4: Business applications</b></p>	<ul style="list-style-type: none"> <li>• Complete an invoice.</li> <li>• Calculate the selling price for an item using markup and markdown.</li> <li>• Use the basic percentage formula to calculate trade, chain, quantity and cash discounts, and net cost.</li> <li>• Use complements to calculate net cost.</li> <li>• Calculate the equivalent single discount for a series discount.</li> <li>• Determine the last date of a discount period.</li> <li>• Calculate the selling price for an item using markup and markdown.</li> <li>• Determine the break-even point and the amount of a profit/loss.</li> </ul>

## **Topical Description**

### Chapter 1: Review of Whole Number and Integers

- 1.1 Place Value and Our Number System
- 1.2 Operations with Whole Numbers and Integers

### Chapter 2: Review of Fractions

- 2.1 Fractions
- 2.2 Adding and Subtracting Fractions
- 2.3 Multiplying and Dividing Fractions

### Chapter 3: Decimals

- 3.1 Decimals and the Place-Value System
- 3.2 Operations with Decimals
- 3.3 Decimal and Fraction Conversions

### Chapter 4: Banking

- 4.1 Checking Account Transactions
- 4.2 Bank Statements

### Chapter 5: Equations

- 5.1 Equations
- 5.2 Using Equations to Solve Problems
- 5.3 Formulas

### Chapter 6: Percents

- 6.1 Percent Equivalents
- 6.2 Solving Percentage Problems
- 6.3 Increases and Decreases

### Chapter 8: Trade and Cash Discounts

- 8.1 Single Trade Discounts
- 8.2 Trade Discount Series
- 8.3 Cash Discounts and Sales Terms

### Chapter 9: Markup and Markdown

- 9.1 Markup based on Cost
- 9.2 Markup Based on Selling Price and Markup Comparisons
- 9.3 Markdown, Series of Markdowns, and Perishables

### Chapter 10: Payroll

- 10.1 Gross Pay
- 10.2 Payroll Deductions
- 10.3 The Employer's Payroll Taxes

Chapter 11: Simple Interest and Simple Discount

- 11.1 The Simple Interest Formula
- 11.2 Ordinary and Exact Interest
- 11.3 Promissory Notes

Chapter 12: Consumer Credit

- 12.1 Installment Loans and Closed-End Credit
- 12.2 Paying a Loan Before It Is Due: The Rule of 78
- 12.3 Open End Credit

Chapter 13: Compound Interest, Future Value, and Present Value

- 13.1 Compound Interest and Future Value
- 13.2 Present Value

Chapter 14: Annuities and Sinking Funds

- 14.1 Future Value of an Annuity
- 14.2 Sinking Funds and the Present Value of an Annuity

Chapter 16: Mortgages

- 16.1 Mortgage Payments
- 16.2 Amortization Schedules and Qualifying Ratios

Chapter 20: Taxes

- 20.1 Sales Tax and Excise Tax
- 20.2 Property Tax
- 20.3 Income Taxes

Chapter 21: Financial Statements

- 21.1: The Balance Sheet
- 21.2: Income Statements
- 21.3 Financial Statement Ratios

**Notes to Instructors**

- **Microsoft Excel should be used when appropriate. MS Excel templates are available as an instructor resource to this text.**