

Math 1005: Business Mathematics

Credit hours: 3 credit hours

Prerequisites: Placement in ACCUPLACER Grid 2 or MATH 0099 with a grade of C or better

Course Description

The application of elementary mathematics to business and retail situations is discussed. Topics include bank services, taxes, simple interest, compound interest, commercial discounts, markup and markdown.

Course Objectives

1. Review and make use of arithmetic skills
2. Develop proficiency in solving applied problems of business and retail management, including topics of commercial discounts, markup, and markdown
3. Analyze the mathematics of finance, including topics of simple and compound interest

Learning Outcomes

1. Review and perform arithmetic operations involving whole numbers, fractions, decimals, ratios, proportions, and percentages
2. Manipulate and solve simple equations and formulas
3. Investigate banking services including reconciling bank accounts and credit card transactions
4. Solve problems involving taxes including computing sales tax, computing property tax, computing personal income tax, and finding tax rates
5. Solve problems involving payroll, including computing wages and commission, computing federal income tax withholding, computing FICA, and computing Medicare
6. Analyze and solve problems involving markup and markdowns
7. Analyze and solve problems involving trade and cash discounts
8. Compute net price, net cost equivalent factor, single discount equivalents, discounts given in terms of trade, credit given after partial payment, and balance due after partial payment
9. Solve simple interest and compound interest problems for present and future value over various intervals of time: days, months, quarters, and years

Course Topics

I. FUNDAMENTALS**

- A. Review of fractions and decimals
- B. Review of percent
 1. Definition
 2. Conversions (percent, decimal, fraction)
 3. Basic percent problems
 4. Percent increase and decrease
- C. Essential algebra
 1. Solving equations involving a single variable
 2. Rearranging simple formulas
 3. Solving word problems relevant to business

II. BANK SERVICES

- A. Checking accounts
 1. Bank statements

- 2. Reconciliation
- B. Credit card transactions

III. TAXES

- A. Sales tax
- B. Property tax
 - 1. Computing tax rate
 - 2. Expressing tax rate
 - 3. Computing tax

IV. PAYROLL

- A. Computing wages and commissions
- B. Income tax withholding
- C. FICA and Medicare

V. INSURANCE*

- A. Fire insurance
- B. Motor vehicle insurance
- C. Life insurance

VI. MARKUP AND MARKDOWN

- A. Markup on cost
 - 1. Finding selling price
 - 2. Finding percent markup
 - 3. Finding cost
- B. Markup on selling price
 - 1. Finding cost
 - 2. Finding percent markup
 - 3. Finding selling price
- C. Markdown problems

VII. DISCOUNTING

- A. Trade discounts
 - 1. Computing net price
 - 2. Series discounts and single discount equivalents
- B. Cash discounts
 - 1. Discounts given in terms of trade
 - 2. EOM, ROG, Extra, As-of dating
 - 3. Problems with and without freight charges
 - 4. Problems with partial payments
 - 5. Borrowing to take advantage of cash discount*

VIII. SIMPLE INTEREST

- A. Use of $I = PRT$ and $S = P + I$ to find I and S
- B. Ordinary and exact interest, approximate and exact time
- C. Use of $I = PRT$ to find P , R , or T
- D. Use of $P = \frac{S}{1+RT}$ to find present value

IX. BANK DISCOUNT*

- A. Simple discount notes
- B. Discounting a note before maturity

X. COMPOUND INTEREST***

- A. Compound amount and interest
- B. Present value

XI. MULTIPLE PAYMENT PLANS*

- A. U.S. Rule
- B. Installment plans

*Optional

**This should be limited in time to no more than seven lecture hours.

***These calculations are to be done with a scientific calculator.