I. **OVERVIEW**

The following information will appear in the 2009 - 2010 catalog

**MATH-50 Business Mathematics**

*Prerequisite: Satisfactory completion of MATH 20 or equivalent placement by MJC assessment process.*

Mathematical background for business students. Problems of buying and selling, simple and compound interest, bank discounts, trade and cash discounts, installment payments, inventory markups, annuities, present value, commissions, taxes, payrolls, depreciation, and financial statements. Field trips are not required. Course is applicable to the associate degree.

II. **LEARNING CONTEXT**

Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   a. Banking
      i. Bank statement

   b. Discounts
      i. Trade
      ii. Cash

   c. Markup and Markdown
      i. Based on cost
      ii. Based on selling price

   d. Payroll
      i. Gross pay
      ii. Social security
      iii. Medicare
      iv. Federal income tax
      v. Net pay

   e. Simple Interest
i. Present value
ii. Maturity value

f. Compound Interest
   i. Present value
   ii. Maturity value

h. Promissory Notes
   i. Proceeds
   ii. Discounts

i. Depreciation Methods
   i. Straight line
   ii. Units of production
   iii. Sum of the year's digits
   iv. Declining balance
   v. MACRS

j. Inventory Methods
   i. Ending inventory and cost of goods
      a. Specific identification
      b. Weighted average
      c. FIFO
      d. LIFO

k. Financial Ratios
   i. Current ratio
   ii. Acid test
   iii. Average day's collection
iv. Total debt to total returns
v. Return on equity
vi. Asset turnover
vii. Profit margin on net sales

I. Installment Buying
   i. Cost of installment buying
   ii. Paying off installment loan before due date

m. Cost of Home Ownership
   i. Types of mortgages
   ii. Amortization schedule
      a. Types of Mortgages
      b. Amortization Schedule

B. ENROLLMENT RESTRICTIONS

1. Prerequisites

   Satisfactory completion of MATH 20 or equivalent placement by MJC assessment process.

2. Requisite Skills

   Before entering the course, the student will be able to:
   
   a. Add, subtract, multiply, and divide with decimals, fractions, mixed numbers, and integers.
   b. Convert between fractions, decimals and percent.
   c. Solve applied problems involving percent.
   d. Solve simple equations.
   e. State and correctly use formulas.
   f. Calculate the area or volume of common objects, using both the English and metric systems of measurement.

C. HOURS AND UNITS

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<tr>
<th>INST METHOD</th>
<th>TERM HOURS</th>
<th>UNITS</th>
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<tbody>
<tr>
<td>Lect</td>
<td>54.00</td>
<td>3.00</td>
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<tr>
<td>Lab</td>
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D. METHODS OF INSTRUCTION (TYPICAL)
Instructors of the course might conduct the course using the following method:

1. Lecture and discussion for presentation of material
2. Demonstrations of mathematical techniques, applications, and problem-solving strategies by both instructor and students
3. Application of material to specific problems in homework and/or in-class exercises
4. Homework assignments and/or in-class exercises require students to analyze a given problem, select an appropriate procedure to solve the problem, apply the procedure correctly, and evaluate the adequacy of the result obtained and the procedure.

E. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS
   Time spent on coursework in addition to hours of instruction (lecture hours)
   1. Daily homework assignments requiring approximately two hours outside of class per hour in class
   2. Daily review of notes
   3. Ongoing review using flash cards or study sheets
   4. Preparation for midterm exams
   5. Preparation for final exam

2. EVIDENCE OF CRITICAL THINKING
   Assignments require the appropriate level of critical thinking
   1. Sales of Peanut M&M's chocolate candies are 20% of total M&M's sales. Sales of Plain M&M's chocolate candies are $320,000. What are the total sales of all Plain and Peanut M&M's?
   2. Laura needs $20,000 for college in 4 years. She can earn 8% compounded quarterly at her bank. How much must she deposit at the beginning of the year to have $20,000 in 4 years?
   3. From the following information, calculate the cost of ending inventory using the retail method:
      Jan. 1 - inventory at cost:  $18,000
      Jan. 1 - inventory at retail:  58,000
      Net purchases at cost:  220,000
      Net purchases at retail:  376,000
      Net sales at retail:  364,000

F. TEXTS AND OTHER READINGS (TYPICAL)


III. DESIRED LEARNING

A. COURSE GOAL
   As a result of satisfactory completion of this course, the student should be prepared to:
   Solve mathematical problems involving buying and selling, simple and compound interest, bank discounts,
trade and cash discounts, installment payments, inventory markups, annuities, present values, commissions, taxes, payrolls, depreciation and financial statements.

B. **STUDENT LEARNING GOALS**

*Mastery of the following learning goals will enable the student to achieve the overall course goal.*

1. **Required Learning Goals**

   Upon satisfactory completion of this course, the student will be able to:

   a. calculate trade and cash discounts including single and chain discounts.
   b. compute markups and markdowns based on both cost and selling price.
   c. determine an employee's gross pay, deductions for social security, Medicare, federal income tax, and net pay.
   d. compare the cost of credit from different sources and choose the most advantageous terms.
   e. calculate simple and compound interest, including present value.
   f. calculate proceeds and discounts for promissory notes.
   g. prepare depreciation schedules for the straight-line method, units of production method, sum of the year’s digits method, declining balance method, and MACRS method.
   h. calculate present and future value of annuities and sinking funds.
   i. prepare bank reconciliation.
   j. calculate the cost of ending inventory and cost of goods sold for the inventory methods of specific identification, weighted average, FIFO, and LIFO.
   k. calculate financial ratios based on balance sheet and income statements of a concern. Include current ratio, acid test, average day’s collection, total debt to total assets, return on equity, asset turnover, and profit margin on net sales.
   l. calculate present value and future value of annuities and sinking funds.
   m. list types of mortgages, compute monthly mortgage payments, calculate total interest, and prepare an amortization schedule.
   n. calculate amount financed, finance charge and deferred payment.
   o. calculate the APR and monthly payment.
   p. calculate rebate and payoff by Rule of 78.
   q. solve various application problems using the objectives listed above.

IV. **METHODS OF ASSESSMENT (TYPICAL)**

A. **FORMATIVE ASSESSMENT**

1. Homework assignments
2. Midterm exams (excluding the following formats: multiple choice, open-book, take-home)
3. Participation
4. Quizzes

B. SUMMATIVE ASSESSMENT

1. Comprehensive 2 to 3 hour Final Exam (excluding the following formats: multiple choice, open-book, take-home)