



BROWARD COLLEGE COURSE OUTLINE

LAST REVIEW: 2009-10
2008-2009

NEXT REVIEW: 2014-15
2013-2014

STATUS: A
A

COURSE TITLE: Business Mathematics

COMMON COURSE NUMBER: MTB1103

CREDIT HOURS: 3

CONTACT HOUR BREAKDOWN
(per 16 week term)

CLOCK HOURS:
(Voc. Course ONLY)

Lecture: **48** Lab:
Clinic: Other:

PREREQUISITE(S): None

COREQUISITE(S): None

PRE/COREQUISITE(S):

COURSE DESCRIPTION:

This course emphasizes the application of mathematics to selected business topics and problems, using a variation of mathematical concepts including linear equations and descriptive statistics.

UNIT TITLES

- 1. Fundamentals of Mathematics in Business**
- 2. Fractions and Decimals**
- 3. Banking and Payroll Applications**
- 4. Additional Percentage Applications**
- 5. Applications of Simple Interest**
- 6. Taxes and Insurance**
- 7. Business Topics: Applications in Finance Time Value of Money Advanced Business Applications**
- 8. Optional: Applications in Accounting**

EVALUATION:

Evaluation may include but is not limited to the following:

Exams, Quizzes, Presentations, Portfolios, Discussions, Class Participation, Attendance, Projects, Co-ops, Practicum, Internships, Externships, and Research Reports.

**** Complete the following only if course is seeking general education status ****

GENERAL EDUCATION Competencies and Skills*:

Please highlight in **green** font all Competencies/Skills from the list below that apply to this course. In the box to the right of the Competency/Skill, enter all specific learning outcome numbers (i.e. 1.1, 2.7, 5.12) that apply.

1. Read with critical comprehension	
2. Speak and listen effectively	
3. Write clearly and coherently	
4. Think creatively, logically, critically, and reflectively (analyze, synthesize, apply, and evaluate)	
5. Demonstrate and apply literacy in its various forms: (highlight in green ALL that apply) (1. technological, 2. informational, 3. mathematical, 4. scientific, 5. cultural, 6. historical, 7. aesthetic and/or 8. environmental)	
6. Apply problem solving techniques to real-world experiences	
7. Apply methods of scientific inquiry	
8. Demonstrate an understanding of the physical and biological environment and how it is impacted by human beings	
9. Demonstrate an understanding of and appreciation for human diversities and commonalities	
10. Collaborate with others to achieve common goals.	
11. Research, synthesize and produce original work	
12. Practice ethical behavior	
13. Demonstrate self-direction and self motivation	
14. Assume responsibility for and understand the impact of personal behaviors on self and society	
15. Contribute to the welfare of the community	

* General Education Competencies and Skills endorsed by '05-'06 General Education Task Force

Common Course Number: MTB1103

UNITS

Unit 1. Fundamentals of Mathematics in Business

General Outcome:

1.0 The student shall be able to add, subtract, multiply, and divide with greater ease and to estimate multiplication and division solutions; to use the features of a basic electronic calculator for business computations; to calculate using standard U.S. weights and measurements; and to calculate numerical averages for business.

Specific Learning Outcomes:

Upon successful completion of this unit, The student shall be able to:

- 1.1** Add, subtract, multiply, and divide whole numbers.
- 1.2** Check for accuracy addition, subtraction, multiplication, and division.
- 1.3** Identify correct meaning of terms for the mathematical expressions.
- 1.4** Use the basic key functions common to most hand-held calculators.
- 1.5** Do calculator operations commonly used in business mathematics, with and without memory register.
- 1.6** Solve word problems, round numbers, and make quick calculations by rounding numbers.
- 1.7** Use standard U.S. weights and measurements in calculations and calculate numerical averages to find the average or mean.

Common Course Number: MTB1103

Unit 2. Fractions and Decimals

General Outcome:

- 2.0 The student shall be able to apply the fundamental processes involved in manipulating fraction and decimals.**

Specific Learning Outcomes:

Upon successful completion of this unit, The student shall be able to:

- 2.1 Change improper fractions to mixed numbers and mixed numbers to improper fractions.**
- 2.2 Reduce fractions to lower terms or raise them to higher terms.**
- 2.3 Add and subtract fractions.**
- 2.4 Explain and demonstrate what a proper fraction, an improper fraction, and a mixed number are.**
- 2.5 Multiply two or more fractions.**
- 2.6 Divide a fraction by another fraction.**
- 2.7 Use aliquot parts to simplify calculations.**
- 2.8 Read decimal numbers.**
- 2.9 Add and subtract decimal numbers.**
- 2.10 Round decimal numbers.**
- 2.11 Multiply numbers containing decimals.**
- 2.12 Divide a decimal by a whole number or by another decimal.**
- 2.13 Multiply and divide by powers of ten.**
- 2.14 Change decimals to fractional equivalents and change fractions to decimal equivalents.**
- 2.15 Approximate products and quotients.**

Common Course Number: MTB1103

Unit 3. Banking and Payroll Applications

General Outcome:

3.0 The student shall be able to apply the appropriate mathematical techniques in solving related problems when working with checking account procedures, percents in business, payroll records, and commissions.

Specific Learning Outcomes:

Upon successful completion of this unit, The student shall be able to:

- 3.1** Write a check and record appropriate information on check stubs and check registers accurately.
- 3.2** Describe the banking cycle and prepare bank reconciliation statements.
- 3.3** Change among percents, fractions and decimals.
- 3.4** Find base, rate, and percentage using formulas.
- 3.5** Describe the use of percentages in business.
- 3.6** Allocate overhead costs.
- 3.7** Prepare a weekly payroll report.
- 3.8** Prepare a payroll register.
- 3.9** Calculate FICA and income tax withholding.
- 3.10** Complete an employee's earnings record.
- 3.11** Calculate a sales commission.
- 3.12** Find net proceeds from account sales on consignment.
- 3.13** Find gross cost from account purchase on consignment.

Common Course Number: MTB1103

Unit 4. Additional Percentages Applications

General Outcome:

4.0 The student shall be able to calculate percents in business applications and apply concepts to problems that contain letters or numbers in computations involving trade and cash discounts, markup, and simple interest.

Specific Learning Outcomes:

Upon successful completion of this unit, The student shall be able to:

- 4.1** Compute straight discounts.
- 4.2** Compute a series of discounts and equivalent single discount.
- 4.3** Describe the difference between cash and trade discount.
- 4.4** Determine markup based on cost and on selling price.
- 4.5** Describe and use markup methods.
- 4.6** Describe simple interest concepts.
- 4.7** Compute interest using the ordinary interest method.
- 4.8** Compute interest using the exact interest method.
- 4.9** Approximate simple interest.

Common Course Number: MTB1103

Unit 5. Applications of Simple Interest

General Outcome:

5.0 The student shall be able to apply the methods of computing interest or finance charges, discounting interest bearing and non-interest-bearing notes, calculating effective interest rates, and computing payments on amortized loans.

Specific Learning Outcomes:

Upon successful completion of this unit, The student shall be able to:

- 5.1** Describe promissory notes.
- 5.2** Calculate the number of days between two dates.
- 5.3** Determine due dates.
- 5.4** Compute interest variables and maturity value.
- 5.5** Calculate interest using single-payment and unpaid-balance method.
- 5.6** Determine if borrowing cash to take advantage of a cash discount is a wise decision.
- 5.7** Calculate the proceeds from discounting an interest-bearing note and from a non-interest-bearing note.
- 5.8** Describe the difference between discount rate versus interest rate.
- 5.9** Calculate simple interest on a monthly basis.
- 5.10** Calculate retail finance charges and understand Truth in Lending Act.
- 5.11** Approximate effective interest rates and distinguish between effective rates and stated rates.
- 5.12** Determine monthly loan payments using the amortization payment factors.
- 5.13** Describe and explain an amortization schedule.

Common Course Number: MTB1103

Unit 6. Taxes and Insurance

General Outcome:

6.0 The student shall be able to describe the need for taxation and how various taxes are computed; describe the different types of life and health insurances available including the costs and benefits; and describe property and automobile insurance including rates, adjustments, and high and low risks.

Specific Learning Outcomes:

Upon successful completion of this unit, The student shall be able to:

- 6.1** Calculate Sales taxes.
- 6.2** Equalize difference assessed value among communities.
- 6.3** Find property tax rates and calculate property tax amounts.
- 6.4** Define basic income tax terms.
- 6.5** Describe the basic makeup of taxable income.
- 6.6** Compute a simple individual and a simple corporate income tax.
- 6.7** Determine life insurance premiums.
- 6.8** Determine cash surrender values, loan values, and settlement options from tables.
- 6.9** Determine medical insurance contributions and reimbursements.
- 6.10** Determine short-rate refunds.
- 6.11** Determine coinsurance losses.

Common Course Number: MTB1103

Unit 7. Business Topics - Corporate Stocks, Corporate and Government Bonds, International Business, Compound Interest and Present Value, Annuities, Business Statistics, Time Value of Money, and Advanced Business Applications

General Outcome:

- 7.0 The student shall be able to apply the appropriate math techniques to solve various types of business problems.**

Specific Learning Outcomes:

Upon successful completion of this unit, The student shall be able to:

- 7.1 Identify the different classes of stock.**
- 7.2 Compute the amount of stock dividends.**
- 7.3 Compute the costs and proceeds of stock transactions and the rate of yield.**
- 7.4 Determine the gain/loss on sale of stock.**
- 7.5 Recognize common types of bonds and their differences.**
- 7.6 Read a bond market report.**
- 7.7 Compute average annual yield and rate of yield at maturity.**
- 7.8 Calculate currency exchange rates, business transactions with foreign countries, and duty rates on imports.**
- 7.9 Compute compound interest.**
- 7.10 Distinguish between future value and present value.**
- 7.11 Apply concepts of compound interest to business problems.**
- 7.12 Describe the concept of an annuity.**
- 7.13 Compute future and present values of ordinary annuities.**
- 7.14 Compute the periodic payment of an annuity.**
- 7.15 Develop loan amortization tables.**
- 7.16 Determine the mean, median, and mode of ungrouped and grouped data; present statistical data on tables and graphs.**
- 7.17 Apply arithmetic concepts to problems that contain letters or numbers.**
- 7.18 Solve simple equations using algebra and check solution by using the original equation.**
- 7.19 Use algebra in calculating simple interest, inventory, and cost.**
- 7.20 Apply the substitution concept.**

Common Course Number: MTB1103

Unit 8. Optional: Applications of Accounting

General Outcome:

8.0 The student shall be able to apply the appropriate math techniques to solve various types of accounting problems concerning inventories and turnovers, depreciation, and financial statement analysis and ratios.

Specific Learning Outcomes:

Upon successful completion of this unit, The student shall be able to:

- 8.1 Determine inventory value at cost under each of these three methods: average cost, LIFO and FIFO.**
- 8.2 Determine inventory value under lower of cost or market.**
- 8.3 Estimate ending inventory and cost of goods sold.**
- 8.4 Calculate average inventory, cost of goods sold, and inventory turnover at both cost and retail.**
- 8.5 Understand the straight-line, declining balance, and sum-of-the-years-digits methods of depreciation.**
- 8.6 Understand the Modified Accelerated Cost Recovery System (MACRS) method of depreciation for income tax purposes.**
- 8.7 Calculate full-year and partial-year depreciation expense under the four different depreciation methods covered in text.**
- 8.8 Compare and analyze income statements and balance sheets.**
- 8.9 Use selected ratios in the analysis of financial statements.**