

PUBLIC SYLLABUS
Columbus State Community College
Mathematics Department

Course and Number: MATH 1104 ~ Mathematical Concepts for Business

CREDITS: 3 **CLASS HOURS PER WEEK: 4 (2 lecture, 2 lab)**

PREREQUISITES: MATH 1025 with a C or better, or placement into MATH 1075, or by placement equivalent

DESCRIPTION OF COURSE (AS IT APPEARS IN THE COLLEGE CATALOG):

This is a college level course which will provide students with the fundamental mathematical content knowledge necessary for employment in a diverse array of entrepreneurial fields and skilled professions. These concepts are intended to broaden and deepen students' mathematical knowledge and understanding from a business perspective. Topics including foundations and business basics, interest, personal finance, and business finance are addressed in a contextualized format using a pedagogy that promotes problem solving and critical thinking through the use of collaborative learning and online tools.

STUDENT LEARNING OUTCOMES:

Unit 1~ Foundations and Business Basics: In this unit students will learn how to...

- Solve problems using percentages.
- Use the mathematics of retail to calculate trade discounts, cash discounts, markdowns, markups, and markup rates.
- Use accounting mathematics to calculate and solve problems involving gross wages and payroll deductions.

Unit 2~ Interest: In this unit students will learn how to...

- Calculate and solve problems involving sales tax, property tax, simple interest, simple discount, compound interest, effective rates and annual percentage rates.
- Use consumer mathematics to calculate and apply finance charges for installment loans and open ended credit terms.

Unit 3~ Personal Finance: In this unit students will learn how to...

- Apply their foundation of math skills to record checking account transactions and reconcile banking statements.
- Use mortgage tables and compound interest to calculate mortgage payments, total interest, amortization values, and standard mortgage qualifying ratios.
- Calculate insurance premiums.
- Calculate stock and bond yields and dividends.

Unit 4~ Business Finance: In this unit students will learn how to...

- Use the mathematics of finance to prepare balance sheets and compute projections.
- Use accounting mathematics to solve problems involving depreciation and inventory while applying their different methods.

INSTITUTIONAL LEARNING GOALS:

This course addresses the following Columbus State general education goals:

- Critical Thinking
- Quantitative Literacy

EQUIPMENT AND MATERIAL REQUIRED:

- TI-30 or an equivalent scientific calculator
- Computer/internet access

TEXTBOOK, MANUALS, REFERENCES, AND OTHER READINGS:

- Textbook: Math for Business & Finance, Slater & Wittry, McGraw-Hill Publication, 2014
- Mc-Graw Hill's Connect with LearnSmart/Smartbook online homework system

GENERAL INSTRUCTIONAL METHODS:

Collaborative learning, online assignments, lecture, discussion, demonstration, exploration and discovery exercises with the use of visual aids, graphing calculators, and/or computer resources.

ASSESSMENT:

Columbus State Community College (CSCC) is committed to assessment (measurement) of student achievement of academic outcomes. This process addresses the issues of what you need to learn in your program of study and if you are learning what you need to learn. The assessment program at CSCC has four specific and interrelated purposes: (1) to improve student academic achievements; (2) to improve teaching strategies; (3) to document successes and identify opportunities for program improvement; (4) to provide evidence for institutional effectiveness. In class you are assessed and graded on your achievement of the outcomes for this course. You may also be required to participate in broader assessment activities.

STANDARDS AND METHODS FOR EVALUATION:

The departmental midterm and final examination should each weigh **20%** of the final course grade. The remainder of the grade is to be determined by the instructor, subject to the following departmental policies:

- Award **NO CREDIT** for attendance.
- Award **NO CREDIT** for assignments that are checked for completion, but not graded for accuracy (i.e. giving points for doing homework, but not grading the problems for correct answers).
- Limit points awarded for Homework/LearnSmart Assignments to **20%** of the total grade for the course (homework and LearnSmart Assignments should each account for a minimum of **5%** of the total grade individually).
- Limit points awarded for In-Class Group Work to **10%** of the total grade for the course.
- Limit points awarded for Excel Labs to **15%** of the total grade for the course.
- Limit points awarded for the Final Project to **15%** of the total grade for the course.
- Eliminate extra credit assignments, or limit them to no more than **2%** of the overall grade for the course.

GRADING SCALE:

Letter grades for the course will be awarded using the following scale:

> 90% - A 80-89% - B 70-79% - C 60-69% - D < 60% - E

Course grades are NOT to be curved, skewed, or otherwise inflated.

SPECIAL COURSE REQUIREMENTS:

Computer/internet access is required to complete online homework assignments.

UNITS OF INSTRUCTION:

- Solve equations involving percentages.
- Convert between percentages, fractions, and decimals.
- Solve the portion formula for base, rate, and portion
- Calculate percentage increases and decreases.

- Calculate single and series trade discounts and the net price of products purchased for sale.
- Determine the single equivalent and net price equivalent rates from series trade discounts.
- Apply the ordinary, receipt of goods, and end-of-month dating methods for cash discounts.
- Interpret invoice sales terms, calculate discount periods and determine payment amounts when full or partial payments are made under cash discount offers.
- Make calculations to find sales tax, excise tax, and property tax.
- Calculate the cost, selling price, and markup rate based on cost and the markup rate based on selling price for units available for sale.
- Calculate discounted selling prices markdown rates, and markdowns for simple and series markdowns.
- Compute gross pay with hourly overtime, straight commission and draw, variable commission, and commission with salary.
- Compute and determine deductions for Federal Tax Withholdings, Medicare, Social Security, and miscellaneous deductions and determine net wages.
- Calculate the net pay per paycheck.
- Find the employer's FUTA and SUTA taxes.
- Find simple interest and maturity value.
- Utilize the ordinary and exact methods for simple interest and maturity value to determine the principal and the maturity value of simple interest notes.
- Apply the simple discount formula to determine the proceeds, face value and simple discount for simple discount promissory notes.
- Find the effective interest rate of a simple discount note.
- Apply the compound interest formula to determine the future value of and the total interest to be earned by a compound interest investment.
- Calculate the compound interest to determine the present value and the total interest earned by a compound interest investment.
- Calculate the effective interest rate for a compound interest investment and use the effective interest rate to compare compound interest rate investments.
- Find the total value, present value, and sinking fund payments of annuities.
- Analyze an installment loan description to determine the installment price, cash price and finance charges for the loan.
- Calculate the monthly payment and Annual Percentage Rate (APR) for an installment loan.
- Calculate the new balance and finance charges for an open-end credit account using the average daily balance method.
- Make and record checking account transactions and reconcile a bank statement.
- Calculate monthly mortgage payments and find the total cost of interest for a mortgage.
- Construct a partial amortization schedule for a mortgage loan.
- Prepare a balance sheet and a vertical analysis of a balance sheet.
- Prepare an income statement and a vertical analysis of an income statement.
- Prepare a horizontal analysis of a financial statement.
- Calculate financial projections and ratios.
- Construct depreciation schedules that include Annual Depreciation, Total Depreciation, and Book Value using the depreciation methods: Straight-line, Units-of-Production, Declining-Balance, and Modified Accelerated Cost Recovery.
- Calculate the Value of Inventory and the Cost of Goods Sold using the Specific Identification, Weighted Average Cost, First-In-First-Out, Last-In-First-Out, Retail, and Gross Profit methods of inventory valuation.
- Determine the inventory turnover rate and the distribution of overhead.
- Student will construct individualized final project utilizing concepts learned in this course.