Eastern WV Community & Technical College
Master Course Record

Course Prefix and Number: MTH 101
Course Title: Transitional Math Level B
Recommended Transcript Title (if over 40 characters) Transitional Math Level B
Date Approved/Revised 11/13/14
Credit Hours: 4 **Contact hours per week (Based on 15 week term):** **Lecture:** 4 **Lab:**
Prerequisite: **Corequisite:** **Pre/Corequisite:**
Grading Mode: A, B, C, or NC. Students may test out of this course by passing a challenge test at 80% or better prior to starting the course. A challenge fee applies.
Catalog Description: This course is designed to allow students to improve basic arithmetic and algebra skills and prepare students for college mathematics applications. Topics include performing operations on whole numbers, fractions, decimals, and integers; solving problems involving percentages and proportions; reading, writing, and evaluating algebraic expressions; solving and graphing linear equations and inequalities; using exponents and scientific notation; and simplifying polynomials. This course *does not* satisfy the general education requirements of a college-level math course.
Course Outcomes: 1. Perform operations with whole numbers 2. Perform operations with fractions and mixed numbers 3. Perform operations with decimal numbers 4. Solve problems involving proportions and percents 5. Perform operations with real numbers 6. Solve linear equations and inequalities 7. Graph linear equations 8. Apply the rules of exponents 9. Recognize, evaluate, and simplify polynomials
Implementation Cycle: Fall and Spring semesters
Role in College Curriculum: (Check all that apply) □ **General Education Core (Specify category)** □ **Technical Core (Specify Program)** □ **Restricted Elective (Specify Program)** □ **General Elective** □ **Workforce Education** **X Other (Please specify)** Transitional Course
Course Fee:
Instructor's Qualifications: Bachelor's Degree with relevant teaching experience.
Expanded Course Description This course will feature instructor-led classes emphasizing student participation,

collaborative learning and hands-on activities, plus a lab with computer-assisted tutorials that students can access outside of regular class time.

Expanded course outcomes:

1. Perform operations with whole numbers
    a. Find the place value of a digit in a whole number
    b. Write a whole number in words and/or numerals
    c. Round whole numbers to a specified place value
    d. Add, subtract, multiply and divide whole numbers
    e. Find the perimeter of a polygon
    f. Find the area of a rectangle
    g. Translate and solve whole number application problems (to include checking results and stating solution units, if applicable)
    h. Estimate solutions to whole number problems by appropriate rounding
    i. Write and evaluate exponential expressions
    j. Evaluate square roots of perfect squares
    k. Apply the order of operations to simplify whole number expressions
    l. Compute the average of a list of whole numbers
2. Perform operations with fractions and mixed numbers
    a. Convert between mixed numbers and improper fractions
    b. Write the prime factorization of a whole number, applying divisibility tests and a times table as needed
    c. State a fraction in its simplest form
    d. Find the least common multiple of a list of numbers
    e. Add, subtract, multiply, and divide fractions
    f. Add, subtract, multiply, and divide mixed numbers and fractions
    g. Apply a natural number exponent to a fraction
    h. Apply order of operations to simplify expressions containing fractions or mixed numbers
    i. Compare fractions
    j. Round fractions and mixed numbers to whole numbers
    k. Solve application problems involving fractions and mixed numbers
    l. Compute the average of a list of fractions
3. Perform operations with decimal numbers
    a. Read and write quantities with decimal places
    b. Write decimals as simplified fractions
    c. Round decimals to specified place value
    d. Write fractions as decimals with specified rounding as needed
    e. Place a list of decimals and/or fractions in order from smallest to largest
    f. Plot decimal quantities on a number line
    g. Add, subtract, multiply, and divide decimals
    h. Solve application problems involving decimals, including circle circumferences
    i. Apply order of operations rules to expressions containing decimals
4. Solve problems involving proportions and percents
    a. Represent a ratio or rate as a fraction with units when appropriate
    b. Solve a proportion equation

c. Solve proportion applications
d. Use unit rate to convert between units of measure (time, linear measures, etc.)
e. Write percents as decimals and decimals as percents
f. Write fractions as percents and percents as fractions
g. Write and solve percent problems using an equation or a proportion
h. Apply percent skills to solve application problems, including percent increase or decrease, sales tax, commission, discount, and simple interest computation
i. Solve percent problems presented as circle graphs

5. Perform operations with real numbers
   a. Plot real numbers on a number line
   b. Add, subtract, multiply, and divide signed numbers
   c. Find the absolute value of a number
   d. Apply the order of operations to evaluate numerical expressions
   e. Classify numbers as belonging to common subsets of real numbers (e.g., natural, integer, rational, real)
   f. Evaluate algebraic expressions containing variables when given specific values for the variable(s)
   g. Use properties of numbers to simplify algebraic expressions
   h. Translate verbal phrases into algebraic expressions
6. Solve linear equations and inequalities
   a. Determine whether a given number is a solution of an equation
   b. Recognize the difference between an expression and an equation
   c. Translate verbal phrases or sentences into algebraic expressions or equations
   d. Solve linear equations using the addition and multiplication principles, including multi-step problems
   e. Solve equations by removing parentheses and combining like terms
   f. Solve equations by clearing fractions
   g. Solve linear inequalities in one variable and graph the solution on a number line
   h. Solve applied problems by identifying a variable, writing an equation, solving, checking and stating the answer, including units when applicable
   i. Use formulas to solve application problems
   j. Solve formulas for a specified variable
   k. Use percent equations to solve discount, percent change, and direct translation percent applications
   l. Solve problems modeled by linear inequalities
7. Graph linear equations
   a. Read and interpret bar graphs and line graphs with attention to axis units, scale, and interpretation of changes in heights over time
   b. Determine whether an ordered pair is a solution of a linear equation in two variables
   c. Find the missing coordinate of an ordered pair solution, given one coordinate of the pair
   d. Name the parts of a rectangular coordinate system and plot ordered pairs

presented in a table or list
   e. Graph linear equations of the forms y = m*x* + b, A*x* + B*y* = C, *x* = a, and *y* = b
   f. Find the intercepts of a graph of a linear equation (from a graph or algebraically)
   g. Find the slope of a line, given two points on the line
   h. Find the slope of a line from its equation
   i. Find the slopes of horizontal and vertical lines
   j. Identify whether a pair of lines is parallel or perpendicular
   k. Find the slope of a line as the rate of change in an applied problem, stating the units associated with the slope
8. Apply the rules of exponents
   a. Evaluate numeric and algebraic expressions containing exponents
   b. Use the rules of exponents to simplify expressions
   c. Simplify expressions containing negative exponents
   d. Convert between scientific notation and decimal notation
   e. Multiply and divide using scientific notation
   f. Apply the Pythagorean Theorem to solve for the hypotenuse or leg of a right triangle
9. Recognize, evaluate, and simplify polynomials
   a. Identify terms, like terms, coefficients, and degree of a polynomial and distinguish between polynomial and non-polynomial expressions
   b. Evaluate a polynomial for a given value of the variable(s)
   c. Simplify polynomials by combining like terms
   d. Write a polynomial in standard form

Prepared by: Andrea Williams, Mathematics Instructor 11/13/14

Name, Title Date

Approved Per LOT Minutes

Dean, Academic and Student Services Date