Eastern WV Community & Technical College
Master Course Record

Course Prefix and Number: MTH 121
Course Title: College Math for General Education
Recommended Transcript Title: College Math for General Education
Date Approved/Revised: 7/15/13; 10/16/13; 11/13/14; 10/13/16; 10/5/17
Credit Hours: 3 **Contact hours per week (Based on 15 week term):** **Lecture:** 3 **Lab:**
Prerequisite: Math ACT score 19 or higher; SAT math score 500 or higher; or ACCUPLACER Arithmetic score of 85 or higher. **Corequisite:** MTH 121S if required by placement. **Pre/Corequisite:**
Grading Mode: Letter Grade
Catalog Description: This course is a study of several topics in mathematics including probability and statistics, measurement systems, formula manipulation and equation solving, geometry, and consumer math with a focus on applications throughout.
Course Outcomes: 1. Apply critical thinking skills 2. Apply algebraic techniques to solve linear and quadratic equations, graph linear equations, and solve application problems 3. Perform conversions within the metric system and between the metric system and U.S. customary system and express quantities in appropriate metric units 4. Apply geometric formulas to solve problems 5. Solve problems related to consumer math 6. Determine the probability of an event 7. Analyze a set of data using statistical techniques
Implementation Cycle: Fall and Spring semesters
Role in College Curriculum: (Check all that apply) X **General Education Core** Mathematics □ **Technical Core** □ **Restricted Elective** □ **General Elective** □ **Workforce Education** □ **Other**
Course Fee:
Instructor's Qualifications: Master's Degree with 18 graduate level mathematics credits
Expanded Course Description:

This course fulfills the general education requirement in mathematics for a 100-level mathematics course.

Expanded course outcomes:

1. Apply critical thinking skills
    a. Use inductive reasoning to predict numbers
    b. Construct a counterexample to show that a conjecture is incorrect
    c. Estimate answers by rounding
    d. Solve problems by estimating
    e. Apply problem-solving techniques
2. Apply algebraic techniques to solve linear and quadratic equations, graph linear equations, and solve application problems
    a. Evaluate an expression using the order of operations
    b. Solve linear equations
    c. Find values of variables within formulas
    d. Solve formulas for a given variable
    e. Write a phrase as a mathematical expression
    f. Translate a written problem to a mathematical equation and solve
    g. Explain the difference between direct variation and inverse variation
    h. Write variation equations and solve
    i. Graph linear equations
    j. Find the slope of the line between two points
    k. Solve quadratic equations by factoring
    l. Solve quadratic equations using the quadratic formula
3. Perform conversions within the metric system and between the metric system and U.S. customary system and express quantities in appropriate metric units
    a. Convert between metric units
    b. Choose appropriate metric units for length, area, volume, mass, and temperature
    c. Convert between Fahrenheit and Celsius
    d. Convert between U.S. system and metric system
4. Apply geometric formulas to solve problems
    a. Classify angles
    b. Find angle measures
    c. Identify types of polygons
    d. Find the perimeter and area of polygons
    e. Find the circumference and area of circles
    f. Apply the Pythagorean Theorem
    g. Find the volume and surface area of three-dimensional figures
5. Solve problems related to consumer math

a. Convert between fractions, decimals, and percents
b. Calculate simple interest
c. Use the compound interest formula to find the total amount and interest
d. Solve problems about installment buying
e. Solve problems about mortgages

6. Determine the probability of an event
   a. Contrast empirical probability and theoretical probability
   b. Find empirical probabilities
   c. Find theoretical probabilities
   d. Find the odds against and in favor of an event
   e. Find the expected value of an experiment
   f. Construct a tree diagram to determine a sample space
   g. Solve OR and AND probability problems
   h. Calculate conditional probabilities
7. Analyze a set of data using statistical techniques
   a. Identify the sampling technique used to obtain a sample
   b. Explain how statistics was misused in a given statement or on a given graph
   c. Construct a frequency distribution
   d. Analyze a frequency distribution
   e. Construct statistical graphs including histograms, frequency polygons, circle graphs, and stem-and-leaf plots
   f. Analyze statistical graphs
   g. Compute the mean, median, mode, and midrange of a set of data
   h. Compute the range and standard deviation of a set of data
   i. Identify different types of distributions
   j. Use the z-score formula to find a specified area or percent under a normal curve

Prepared by: Andrea Williams, Mathematics Faculty 10/5/17

Name, Title Date

Approved Per LOT Minutes

Dean of Teaching and Learning Date