

**Eastern WV Community & Technical College
Master Course Record**

Course Prefix and Number: MTH 102
Course Title: Math for Elementary Teachers
Recommended Transcript Title (if over 40 characters) Math for Elementary Teachers
Date Approved/Revised: 6/16/14; 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 102S if required by placement. Pre/Corequisite:
Grading Mode: Letter Grade
Catalog Description: This course is a study of the structure of mathematical systems and operations defined on these systems; historical development of numbers and number systems including contributions from diverse cultures; and elementary probability, statistics, and basic geometry. Emphasis will be placed on building conceptual understanding and developing problem-solving skills. This course <i>does not</i> satisfy the general education requirements for a college-level math course.
Course Outcomes: <ol style="list-style-type: none"> 1. Apply various problem-solving techniques 2. Convert between different systems of numeration and apply different computation methods 3. Apply the basic rules of number theory and properties of real numbers 4. Apply geometric formulas to solve problems 5. Define and identify mathematical systems and groups 6. Determine the probability of an event 7. Analyze a set of data using statistical techniques
Implementation Cycle: Fall
Role in College Curriculum: (Check all that apply) <input type="checkbox"/> General Education Core (Specify category) <input checked="" type="checkbox"/> Technical Core (Specify Program) Elementary Education – Shepherd University 2 + 2 Agreement <input type="checkbox"/> Restricted Elective (Specify Program) <input type="checkbox"/> General Elective <input type="checkbox"/> Workforce Education <input type="checkbox"/> Other (Please specify)
Course Fee: None
Instructor's Qualifications: Master's degree with 18 graduate hours in Math

Course Number & Title: MTH 102 – Math for Elementary Teachers

Date Prepared/Revised: 11/13/14; 10/13/16; 10/5/17

Date Approved by Curriculum Committee: 11/4/16; 10/5/17

Date Course Approved by LCC: 11/17/14; 11/28/16; 10/16/17

Expanded Course Description

This course is part of the curriculum for the Shepherd University 2 + 2 Agreement for Elementary Education. This course does not satisfy the general education requirements for college-level math.

Expanded course outcomes:

1. Apply various problem-solving techniques
2. Convert between different systems of numeration and apply different computation methods
 - a. Discuss the history of different systems of numeration and advantages and disadvantages of each
 - b. Convert a number from one system of numeration to another
 - c. Convert a number from one base to another
 - d. Perform operations in other bases
 - e. Demonstrate alternative methods for multiplying two numbers
3. Apply the basic rules of number theory and properties of real numbers
 - a. Apply divisibility tests to find factors and prime factorization of a number
 - b. Find the GCD and LCM of a set of numbers
 - c. Solve application problems involving GCD or LCM
 - d. Identify different subsets of the real numbers and perform operations on them
 - e. Identify and apply properties of the real numbers
 - f. Find terms of an arithmetic or geometric sequence
 - g. Write an expression for the general term of an arithmetic or geometric sequence
 - h. Determine the partial sum of an arithmetic or geometric sequence
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. Define and identify mathematical systems and groups
 - a. Define a mathematical system and identify different properties of a system
 - b. Define group and recognize whether a system forms a group
 - c. Recognize whether a system forms a commutative group
 - d. Perform modular arithmetic

- 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
 - i. Use the counting principle, permutations, and combinations to solve probability problems
- 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
 - a. 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