SINCLAIR COMMUNITY COLLEGE
DAYTON, OHIO

DEPARTMENT SYLLABUS FOR COURSE IN

MAT 0445 – QUANTATIVE LITERACY BOOSTER
(1 CREDIT HOUR ≡ 3 CONTACT HOURS)

1.   COURSE DESCRIPTION: This course is taken in conjunction with MAT 1445, Quantative Literacy. This course reviews prerequisite concepts for the topics in MAT 1445. Each prerequisite concept is covered in this course just prior to being needed in MAT 1445. This course integrates numeracy, proportional reasoning, algebraic reasoning, statistical reasoning, and understanding of functions. An activity based approach is used to explore numerical concepts, quantitative reasoning, graphical displays of data, proportional relationships in real-world problems, problem solving with equations and inequalities, functions, and linear models and other mathematical models. Students will develop conceptual and procedural tools that support the use of key mathematical concepts in a variety of contexts.

2.   COURSE OBJECTIVES:
- **Numerical Relationships**:
    - o Demonstrate operation sense and communicate verbally and symbolically the effects of common operations on numbers.
    - o Demonstrate competency in using and an understanding of magnitude in the context of place values, fractions, and numbers written in scientific notation.
    - o Use estimation skills, knowing how and when to estimate results, solve problems, detect errors, and check accuracy.
    - o Apply quantitative reasoning to solve problems involving quantities or rates.
    - o Demonstrate measurement sense.
    - o Demonstrate an understanding of the mathematical properties and uses of different types of mathematical summaries of data, such as, measures of central tendency, and mathematical models.
    - o Read, interpret, and make decisions based upon data from graphical displays, such as line graphs, bar graphs, scatterplots and histograms.

- **Proportional Relationships**:
    - o Recognize proportional relationships from verbal and numeric representations.
    - o Compare proportional relationships represented in different ways.
    - o Apply quantitative reasoning strategies to solve real-world problems with proportional relationships based on an understanding that derived quantities may be described with whole numbers, fractions, or decimals, or in a combinations of these, and that to fully explain these relationships, units must be used.

- **Algebraic Reasoning**:
    - o Understand various uses of variables to represent quantities or attributes.
    - o Describe the effect that a change in the value of one variable has on the value(s) of other variables in the algebraic relationship.
    - o Construct and use equations or inequalities to represent relationships involving one or more unknown or variable quantities to solve problems.

- **Statistical Reasoning:**
  - o Understand the data analysis process and characteristics of well-designed statistical studies.
  - o Analyze probabilities and statements about probabilities including conditional probabilities.
  - o Critically evaluate whether conclusions based on data are reasonable.

- **Functions, Models, and Problem Solving**:
  - o Translate problems from a variety of contexts into a mathematical representation and vice versa.
  - o Representations will include linear, and quadratic functions.
  - o Describe the behavior of common types of functions using words, algebraic symbols, graphs, and tables.
  - o Identify when a linear model or trend is reasonable for given data; when a linear model does not appear to be reasonable, know how to explore the applicability of other models.
  - o Identify important characteristics of functions in various representations.
  - o Use appropriate terms and units to describe rate of change. Understand that abstract mathematical models used to characterize real-world scenarios or physical relationships are not always exact and may be subject to error from many sources, including variability.

3. PREREQUISITE: Satisfactory score on Mathematics Placement Test or grade of "C" or better in MAT 1270.

4. ASSESSMENT
Grades will be calculated as follows:
Participation in Class 50%
Tests 50%

Students will receive credit for every class in which they productively participate according to the following scale.

participation letter grade	percentage of total classes in which students productively participate
A	at least 93%
B	at least 86%
C	at least 80%
F	less than 80%

Tests will be graded on the following scale.

test letter grade	student test score
A	at least 85%
B	at least 70%
C	at least 55%
F	less than 55%

5. CALCULATOR: A scientific calculator is required and will be provided.

6. MAT 1450 TEXT: **"QUANTWAY" materials edited to support MAT 1445**
Course Packet available at Sinclair Community College Bookstore.
Adopted: Fall 2016

7. PREPARED BY: Jim Willis, Kinga Oliver, David Hare

Effective: Spring 2017

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CLASS SCHEDULE FOR COURSE IN
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Week	Lessons	Notes
1	*5.1, 5.2*	Forming groups Contract activity Self Regulating Your Learning
2	*5.3, 5.4*	
3	5.5, 5.7	Self Regulating Your Learning: The Plan Phase The Writing Principle Self Regulating Your Learning: The Work Phase
4	5.8, 5.9	**Exam 1**
5	*6.1*	Self Regulating Your Learning: The Reflect Phase
6	*6.3, 6.4*	
7	6.5	
8	*6.6, 6.7*	
9	*6.8*	**Exam 2**
10	*7.1*	
11	*7.2, 7.3*	
12	*7.3, 7.4*	
13	*7.5, 7.6*	
14	*7.7, 8.2*	
15	*8.3*	**Exam 3**
16		**Final Exam**