SUFFOLK COUNTY COMMUNITY COLLEGE
COLLEGE-WIDE COURSE SYLLABUS
MAT009

I. COURSE TITLE:
Mathematical Literacy

II. CATALOG DESCRIPTION:
This course integrates fluency with numbers, proportional reasoning, data interpretation, probability, algebraic reasoning, graphing lines, modeling, and communicating quantitative information. Mathematical concepts are investigated through problem-solving and discussion in the context of real-life topics such as: personal finances, population growth and density, government, economics, and health-related statistics. This course prepares students to take a college-level non-algebraic course in mathematics, such as MAT101, MAT102, or MAT103. Students placing at this level and needing MAT111 should take MAT006 or MAT007 instead of this course. Graded on an SA-SB-SC-R-U-W basis. Does not fulfill requirements for any degree or certificate. Prerequisite: MAT001 or math placement, and RDG098. A-E-G / 4 cr. hrs.

III. LEARNING OUTCOMES:
Upon successful completion of this course, students will be able to:
1. Apply the concepts of numeracy to investigate and describe quantitative relationships and solve problems in a variety of contexts.
2. Represent proportional relationships and solve problems that require an understanding of ratios, rates, proportions, scaling, and data.
3. Reason using the language and structure of algebra to investigate, represent, and solve problems.
4. Represent relationships between quantities in multiple ways (tables, equations, graphs) and solve problems that require an understanding of modeling.
5. Communicate quantitative information in writing.

IV. REQUIRED TOPICS:
1. Numeracy
- Quantitative situations in real life
- Making sense of large numbers, scientific notation
- Estimation
- Order of operations
- Perform multi-step calculations
- Converting between percents, ratios, and decimals in context
- Probability (percent and proportion)

2. Proportional Reasoning
- Measure of change, percent of increase/decrease
- Picture data with graphs
- Measures of central tendency
- Applications using ratio and proportion

3. Algebraic Reasoning
- Converting units
- Meaning and use of variables
- Geometry and using formulas to make financial decisions
- Solving for an unknown
- Solving proportions

4. Using Models
- Linear models (equations, graphs, slope)
- Exponential growth (time permitting)
- Comparing linear and exponential change (time permitting)

Revised: Spring 2022

V. OUTLINE OF TOPICS WITH TIMELINE

The pedagogical approach to Mathematical Literacy is highly integrated. Each topic is discovered by the student through relevant context. Major topics such as number sense, estimation, and proportional reasoning are continually returned to for reinforcement and deeper understanding. Topics overlap depending on the application. Communication of quantitative information is embedded throughout the course.

Topics	Approximate Time (including examinations)
Number sense Pattern recognition Ratios, percents, and decimals Estimation Order of operations	3 weeks
Number sense Ratios, percents, and decimals Estimation Order of operations Scientific notation Proportions Simple probabilities from two-way tables	2 weeks
Proportions Unit analysis, rates, and conversions Measure of change, percent of increase/decrease Graphical methods for displaying data including bar graphs, polygons, and pie charts Scaling graphs	2 weeks
Measure of change, percent of increase/decrease Graphical methods for displaying data including pictographs Scaling Measures of central tendency: mean, mode, median, and weighted averages Applications using ratio and proportion	3 weeks
Understanding variables Dimensional analysis Unit conversions Precision and rounding Error propagation Length, area, and volume calculations Evaluating and simplifying formulas	2 weeks
Solving linear equations and proportions Order of operations Solving single-term quadratic equations	2 weeks
Linear models and graphs *Optional topics (time permitting):* Compound interest Exponential models and formula Comparison of linear and exponential models	1 week

VI. Evaluation of Student Performance:
   To be determined by the instructor

VII. Courses that require this course as a prerequisite:
   BIO101, BIO103, BIO105, BIO109, BIO111, BIO130-132, BIO137, BIO141, CHE100,
   CHE120, CHE122, CST112, ESC101, ESC102, MET101, MET102, AST101, ESC102,
   ESC124, ESC202, MAT101, MAT102, MAT103, MAT107, MAT108, MAT115H, MAR111,
   MAR115, MAR102, OPD101, PHY110, SCI127H

VIII. Tutoring and Supportive Resources at SCCC