MATH 1001  Quantitative Reasoning

Course Description: This course emphasizes quantitative reasoning skills needed for informed citizens to understand the world around them. Topics include logic, basic probability, data analysis, and modeling from data.

A.  **Review Topics:** Upon entering Quantitative reasoning, the student is expected to possess an understanding of Introductory and Intermediate Algebra. At most 20% of class time will be spent reviewing the following topics in order to reinforce the students’ understanding of them:
1.  Sets and Set Operations
2.  Geometry (Calculating Lengths, Areas, Perimeters, and Volumes)
3.  Ratio and Proportion
4.  Approximation (Round-off error, significance and accuracy)
5.  Percentages
6.  Relative Value
7.  Computations with Formulae

B.  **Uniform Requirements:** Between 50% and 90% of class time will be spent covering the following topics:
1.  Logic
   - Negations, Quantifiers, Conditional Statements, Converse
   - Inductive and Deductive Reasoning, Valid Arguments
2.  Basic Probability
3.  Data Analysis
   - Basic Descriptive Statistics (Mean, Median, Mode, Standard Deviation)
   - Correlation, Causality, and Inferences
   - Interpreting Graphical Displays
   - Sampling and Randomness
4.  Modeling from Data
   - Function Concepts (Definition, Notation)
   - Scatter Plots
   - Linear Models and Regression Lines
   - Quadratic Models
   - Exponential Models

C.  **Optional Topics:** 10% to 30 % of the course will cover topics from:
1.  Mathematics and the Arts (Symmetry, perspective, tessellations, and/or fractals)
2.  Mathematics and Politics (Voting methods and/or apportionment)
3.  Mathematics and Business (Graph theory, networks, and/or linear programming)
4.  Mathematics of Finance (Compound interest, annuities, and/or loan payments)

For suitable textbooks, please consult the texts spreadsheet on the ACMS website

Date: February, 2014