I. CATALOG DESCRIPTION:

MAT 110 – Mathematical Measurement and Literacy  
Class 2 hours Lab 2 hours Credit 3 hours

This course provides an activity-based approach that develops measurement skills and mathematical literacy using technology to solve problems for non-math intensive programs. Topics include unit conversions and estimation within a variety of measurement systems; ratio and proportion; basic geometric concepts; financial literacy; and statistics including measures of central tendency, dispersion, and charting of data. Upon completion, students should be able to demonstrate the use of mathematics and technology to solve practical problems, and to analyze and communicate results.

II. PREREQUISITE: DMA 010, DMA 020, DMA 030 or appropriate placement measures

III. EXPECTED STUDENT LEARNING OUTCOMES:

Upon completion of the course, students should be able to:
1. Demonstrate estimation skills and justify results
2. Use dimensional analysis to convert units of measurement
3. Employ fractions, percentages and proportions to solve contextual problems
4. Compute geometric measurements of perimeter, area, volume and angles
5. Use technology to analyze and interpret elements of personal finance
6. Compare and contrast measures of center and measures of dispersion
7. Interpret tables, charts, and graphs and communicate results

Caveat: The purpose of problem solving is not merely to obtain an answer, but also to extend and cultivate the ability to think independently and creatively, beyond the mere application of computing rules. During the course, students are encouraged and expected to develop a conceptual grasp of the topics and the ability to move effortlessly between mathematical results and their interpretations.

IV. METHODS OF INSTRUCTION:

A. Lectures on basic concepts and skills
B. Read text
C. View MyLabsPlus multimedia learning resources
D. Class discussion of topics
E. Skill building in-class and lab exercises

V. CONTENT:

A. Geometry and Measurement: Compute geometric measurements or perimeter, area, volume and angles.
B. Proportional Reasoning: Prepare a recipe with a change in serving size, calculate and compare changes in BMI
C. Interpreting Statistics and Graphs: Organize and present graphs of data; identify deceptions in graphs.
D. Financial Literacy: create a personal budget, compare loans, determine the cost of borrowing money, understanding a credit card or mortgage statement.
E. Dimensional Analysis: Metric and U.S. customary unit conversion.
VI. **TYPICAL ASSIGNMENTS:**
   A. In class participation during lecture
   B. Online and textbook homework
   C. Instructor prepared worksheets
   D. Online and/or in-class chapter tests

VII. **EVALUATION:**
   A. Methods of Evaluation
      1. Self: Student use of MyLabsPlus study plan
      2. On-line homework with in-class review
      3. Critique instructor prepared worksheets for critical thinking and/or quantitative skills
      4. Return and critique Chapter Tests for critical thinking and/or quantitative skills
         a. Typical questions:
            1. Given that a North Carolina license plate has 3 letters followed by 4 digits, find:
               a) How many such plates are possible? b) How many such plates would not have a repetition? c) The probability that a random plate has at least one repetition.
            2. Explain the difference between APR and APY. Why would an institution choose one representation over another?
            3. Convert 60mph to fps.
   B. Frequency of Evaluation
      1. Self evaluation study plan: ongoing.
      2. Review student progress and provide feedback weekly for online homework.
      3. Weekly worksheets.
      4. Periodic tests and/or quizzes

VIII. **TYPICAL TEXT:** Cape Fear Community College Math 110 with MyLabsPlus, Custom Edition for Cape Fear Community College, published by Pearson.

IX. **OTHER SUPPLIES REQUIRED OF STUDENTS:**
   1. MyLabsPlus Student Access Code is required.
   2. A scientific calculator is required.

Reviewed by Claude Moore, July 21, 2015
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