BAKER COLLEGE
STUDENT LEARNING OUTCOMES

MTH1010 Quantitative Literacy
3 Semester Hours

Student Learning Outcomes & Enabling Objectives

By the end of the course, students will demonstrate the ability to:

1. Evaluate quantitative arguments.
   a. Apply basic concepts of logic, including evaluation of the truth-value of a statement.
   b. Identify applications of inductive and deductive reasoning.
   c. Apply critical thinking techniques to numeric data, such as credibility, provenance, bias, etc.
   d. Use basic set concepts including Venn Diagrams and set operations.

2. Use the process of inquiry to develop quantitative arguments.
   a. Define appropriate questions.
   b. Identify appropriate numeric data.
   c. Apply basic experimental design to address questions.
   d. Apply logically sound arguments based on inductive or deductive reasoning.

3. Create mathematical models to address real world problems.
   a. Use problem-solving strategies.
   b. Use unit conversion and dimensional analysis to solve various real world problems.
   c. Use algebraic concepts to present a logical, step-by-step process, leading to a correct solution.
   d. Interpret linear models including graphs, slope, and intercepts.
   e. Apply geometric formulas such as those for perimeter, area, volume, and the Pythagorean Theorem.
   f. Solve problems that involve saving and investment calculations, including compound interest, to make informed decisions about loans, credit card, and mortgage options.

4. Interpret statistical arguments.
   a. Identify foundational terminology of statistics.
   b. Describe the importance of data collection and randomness to obtaining a representative sample.
   c. Calculate descriptive statistics, including measures of center and dispersion.
   d. Interpret statistical displays for qualitative and quantitative data.

e. Illustrate misuse of statistical data.

Big Ideas and Essential Questions

Big Ideas

- Reasoning/Decision Making
- Critical Thinking
- Quantitative Literacy
- Inquiry
- Mathematical Models
- Problem Solving

Essential Questions

1. How does the quality of one's reasoning impact the decisions one makes?
2. How do I know when someone has presented a well-reasoned argument?
3. How strong is the numerical evidence and how does it support or refute the argument?
4. How do you determine the questions to ask and the information to gather, to draw a conclusion?
5. How do mathematical models both enhance and limit understanding of a phenomenon?
6. What do effective problem-solvers do when they encounter obstacles?

Institutional Student Learning Outcome Alignments

ISLO 1: Scientific Practice, Quantitative Literacy, Digital Information Literacy
ISLO 3: Critical and Creative Thinking, Inquiry/Analysis, Synthesis, Transfer of Learning

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These SLOs are not approved for experiential credit.

Effective: Fall 2020