MTH 105Z : MATH IN SOCIETY

Transcript title

Math in Society

Credits

4

Grading mode

Standard letter grades

Total contact hours

40

Lecture hours

40

Prerequisites

MTH 095 or higher (except MTH 102) or STAT 243Z or minimum placement Math level 16.

Course Description

An exploration of present-day applications of mathematics focused on developing numeracy. Major topics include quantitative reasoning and problem-solving strategies, probability and statistics, and financial mathematics; these topics are to be weighted approximately equally. This course emphasizes mathematical literacy and communication, relevant everyday applications, and the appropriate use of current technology.

Course learning outcomes

1. Employ mathematical reasoning skills when reading complex problems requiring quantitative or symbolic analysis and demonstrate versatility in the consideration and selection of solution strategies.
2. Use appropriate mathematical structures and processes to make decisions and solve problems in the contexts of logical reasoning, probability, data, statistics, and financial mathematics.
3. Use appropriate representations and language to effectively communicate and interpret quantitative results and mathematical processes orally and in writing.
4. Demonstrate mathematical habits of mind by determining the reasonableness and implications of mathematical methods, solutions, and approximations in context.
5. Demonstrate proficiency in the use of mathematical symbols, techniques, and computation that contribute to the exploration of applications of mathematics.

Content outline

Logical Reasoning, in particular, learning Strategies of Problem Solving (non-algebraic, showing another way, etc.) are skills that should permeate throughout the entire course. Discussions regarding the “logical soundness” of problem-solving methods and student solutions used in the class is a great way to have these discussions.

1. Probability and Statistics
   a. Counting (Multiplication Property)
   b. Measures of Central Tendencies and Spread
   c. Calculating and Interpreting Basic Probabilities
   d. Interpreting Graphical Displays/Histograms (discuss logical reasoning involved here as well)
   e. Margin of Error/Polls
   f. Expected Value
   g. Interpreting Distributions
   h. Misuse of Data (discuss logical reasoning involved here as well)
2. Financial Literacy
   a. Percent Sales and Income Tax
   b. Simple and Compound Interest
   c. Savings Plans/Annuities
   d. Loans and Credit Cards
3. Additional Math Topics (at most 30% of the course)

Required materials

A combination of low/no cost textbook and instructor provided materials.

General education/Related instruction lists

- Computation
- Mathematics