ROWAN UNIVERSITY
Department of Mathematics

Master Syllabus

MATH 01118 Quantitative Reasoning (3sh)

CATALOG DESCRIPTION:

Quantitative Reasoning serves students who are focused on developing quantitative literacy skills that will be meaningful for their professional, civic, and personal lives. Such reasoning is a habit of mind, seeking pattern and order when faced with unfamiliar contexts. In this course, an emphasis is placed on the need for data to make good decisions and an understanding of the dangers inherent in basing decisions on anecdotal evidence rather than data.

OBJECTIVES:

Upon successful completion of this course, students will:

- Apply the language and notation of sets.
- Determine the validity of an argument or statement and provide mathematical evidence.
- Solve problems in mathematics of finance.
- Demonstrate fundamental probability/counting techniques and apply those techniques to solve problems.
- Interpret and analyze various representations of data.
- Demonstrate the ability to choose and analyze mathematical models to solve problems from real-world settings, including, but not limited to, personal finance, health literacy, and civic engagement.

PREREQUISITES:

Appropriate test scores.

CONTENT:

- Number, Ratio, and Proportional Reasoning
    - Solve real-life problems requiring interpretation and comparison of complex numeric summaries which extend beyond simple measures of center.
    - Solve real-life problems requiring interpretation and comparison of various representations of ratios (i.e., fractions, decimals, rates, and percentages).
    - Distinguish between proportional and nonproportional situations and, when appropriate, apply proportional reasoning.
- Modeling
    - Analyze and critique mathematical models and be able to describe their limitations.

    - Use models, including models created with spreadsheets or other tools, to estimate solutions to contextual questions, identify patterns, and identify how changing parameters affect the results.
    - Choose and create models for bivariate data sets, and use the models to answer questions and draw conclusions or make decisions.
- Probability
    - Evaluate claims based on empirical, theoretical, and subjective probabilities.
    - Use data displays and models to determine probabilities (including conditional probabilities) and use these probabilities to make informed decisions.
- Statistics
    - Use statistical information from studies, surveys, and polls (including when reported in condensed form or as summary statistics) to make informed decisions.
    - Create and use visual displays of data.
    - Summarize, represent, and interpret data sets on a single count or measurement variable.
    - Use properties of distributions to analyze data and answer questions.

SUGGESTED TEXTS:

- Lumen Learning on Canvas

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