Course Outcome Summary
General Education Satisfier Course

MATH 105 Essential Mathematics for College Students

Course Information

Division	Science/Mathematics
Contact Hours	90
Total Credits	6

Prerequisites
RDG 090 and ENGL 090 and MATH 090 or qualifying scores on accepted placement tests

Course Description
This course covers solving and graphing linear equations, systems of linear equations, polynomials and exponent rules, factoring, rational expressions and equations, radicals, quadratic functions, and exponential and logarithmic equations. Students will be expected to work with mathematics numerically, graphically, analytically, and verbally. This course is a review of mathematical and algebra topics before the student transitions into college level statistics, business or liberal arts mathematics.

This course is approved as a General Education competency satisfier.

General Education Goal: Critical Thinking
Competency: Use mathematics to effectively model and evaluate quantitative relationships.
Learning Outcome: Students will apply mathematical concepts and methods to understand, analyze, and communicate in quantitative terms

General Education Learning Objectives
A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
B. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

Course Outcomes
To evidence success in this course, each student will be expected to:

1. Solve linear equations and inequalities.
     Applies to General Education Objectives
     A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
     B. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
     C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
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2. Calculate mean, median, and mode.
    Applies to General Education Objectives
    A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
    C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.

3. Solve simple interest and related application problems.
    Applies to General Education Objectives
    D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

4. Graph linear and quadratic functions
    Applies to General Education Objectives
    B. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
    C. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
    D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

5. Create and interpret line graphs, bar graphs, pie graphs, and tables.
    Applies to General Education Objectives
    C.   Organize, analyze, and interpret various representations of date, including functions, graphs, and tables.
    D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

6. Solve systems of equations and related applications.
    Applies to General Education Objectives
    B. Utilize linear, exponential, and other non -linear models to evaluate the nature of relationships in real world problems.
    D. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.

7. Perform operations with polynomials including factoring
    Applies to General Education Outcome
    A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.

8. Perform operations with rational expressions and radical expressions including evaluating radical expressions.
    Applies to General Education Outcomes
    A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
    D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

9. Solve and graph quadratic equations and applications.
   Applies to General Education Objectives
   A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
   B. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
   C. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.

10. Solve exponential and logarithmic equations and applications.
    Applies to General Education Outcomes
    A. Use arithmetic and geometric concepts and representations to solve, estimate, calculate, and check answers to problems to determine the reasonableness of results.
    B. Organize, analyze, and interpret various representations of data, including functions, graphs, and tables.
    C. Utilize linear, exponential, and other nonlinear models to evaluate the nature of relationships in real world problems.
    D. Utilize a variety of problem-solving strategies to solve problems and communicate findings using appropriate mathematical language and symbolism.

By: Kathleen Shepherd,
Feb. 2023

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