

COMMON COURSE OUTLINE: Course discipline/number/title: MATH 0099: Intermediate Algebra

A. CATALOG DESCRIPTION

1. Credits: 4

2. Hours/Week: 4 per week or as scheduled

3. Prerequisites (Course discipline/number): Successful completion of Elementary Algebra with a grade of C or higher or Appropriate RCTC placement score.

4. Co-requisites (Course discipline/number): None

5. MnTC Goals (if any): NA

This course is a fundamental component of algebra beyond the level of Elementary Algebra. Topics include linear and quadratic inequalities, systems of linear equations, and functional notation. The course is considered primarily as a foundation for college level mathematics and science. Prerequisites: Proficiency in Signed Numbers with and without the use of a calculator, Familiarity of Number Sets, Simplifying Elementary Level Algebraic Expressions: Polynomial, Radical, Rational, Solving Elementary Level Algebraic Equations: Linear, Radical, Rational, Graphing Linear Equations Simplify Expressions containing Exponents (Integer and Rational) – properties of exponents, Solve Applications Involving Ratio and Proportion, Factoring Algebraic Expressions, Solving Linear Systems (two variables).

B. DATE LAST REVISED (Month, year): September, 1999

C. OUTLINE OF MAJOR CONTENT AREAS:

1. Solving Equations: Linear, Quadratic, Rational, Radical
2. Graphing Linear and Non-Linear equations (two variables)
3. Systems of Equations (two and three variable, Linear and Non-Linear)
4. Inequalities: Linear and Non-Linear
5. Simplifying Expressions: Polynomial, Rational, Radical, Exponential
6. Factoring Algebraic Expressions
7. Right Triangle Relationships (Pythagorean Theorem)
8. Function Notation and the Algebra of Functions
9. Inverse Functions
10. Conic Sections (Parabolas, Circles, and Ellipses)
11. Variations
12. Applications

D. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Master the following topics at the Intermediate level:
 - a) Equations: Linear, Quadratic (real solutions), Rational, Radical
 - b) Linear Inequalities
 - c) Graphs of Linear Equations
 - d) Equations of Lines
 - e) Exponent-integer and rational
 - f) Operations of Algebraic Expressions: Polynomial, Rational, Radical
 - g) Systems of Linear Equations- 2 variables
 - h) Basic Function Notations
2. Introductory
 - a) Inequalities-Quadratic, Rational, Non-Linear Systems
 - b) Conic Sections
 - c) Systems of Linear Equations (in three variables)
 - d) Complex numbers
 - e) Functions, Relations, Inverse Functions, algebra of functions
 - f) Variations
 - g) Graphing of Translated Quadratics
 - h) Quadratic Equations with Complex Solutions
 - i) Optimization-min/Max Applications

E. LEARNING OUTCOMES (MNTC): NA



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F. METHODS FOR EVALUATION OF STUDENT LEARNING:

1. Tests over covered topics
2. Quizzes
3. Homework
4. Group assignments
5. Comprehensive Final Exam

G. SPECIAL INFORMATION (if any):

A Scientific calculator is recommended