

I. COURSE INFORMATION

- A. Mathematics 103 Intermediate Algebra
- B. 3 credit hours
- C. Lial, Hornsby, & McGinnis. *Intermediate Algebra*. 13th ed. New Jersey: Pearson, 2019
- D. Prerequisites: ACT score 18-19; or Accuplacer score Next Gen 250-262; or completion of MAT 015 with a C grade or above
- E. KRSN: MAT 0990 Intermediate Algebra

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

II. COURSE DESCRIPTION

This course covers basic topics in algebra, including the solution of linear and quadratic equations, factoring, graphing, inequalities, rational and irrational numbers and functions.

III. LEARNING OUTCOMES

- A. Demonstrate the ability to perform of arithmetic and algebra manipulation by
 - Factor expressions completely using various techniques
 - Performing addition, subtraction, multiplication and division on rational expressions
 - Simplifying complex fractions
 - Applying the laws of exponents to simplify expressions containing rational exponents
 - Applying the laws of radicals to perform addition, subtraction and multiplication on expressions involving radicals and rationalizing denominators containing radicals
 - Simplifying radicals containing negative radicands and performing arithmetic operations on complex numbers
 - Evaluating functions using function notation
- B. Solve equations and inequalities
 - Solve linear equations in one variable
 - Solve linear inequalities in one variable showing solutions both on the real number line, in interval notation, and in set-builder notation
 - Solve literal equations
 - Solve systems of linear equations in two variables
 - Solve equations by factoring and quadratic formula
 - Solve equations containing rational expressions
 - Solve equations involving radicals
 - Develop and solve mathematical models such as variation, mixture, motion, work, and geometrical applications
- C. Produce graphs on a coordinate plane by
 - Graphing linear equations and inequalities
 - Graphing functions, including linear and quadratic
- D. Analyze equations and graphs to
 - Determine an equation of a line given sufficient information such as point and slope, two points, point and a perpendicular/parallel line
 - Calculate the distance between two points
 - Distinguish between functions and relations using the Vertical Line Test
 - Identify the domain and range of a function

IV. MAJOR CONTENT AREAS

- A. Linear equations, inequalities and applications
- B. Graphs, linear equations and functions
- C. Systems of linear equations
- D. Exponents, polynomials and polynomial functions
- E. Factoring
- F. Rational expressions and functions
- G. Roots, radicals, and root functions
- H. Quadratic equations

V. ASSIGNMENTS (may include but are not limited to)

- A. Reading assignments
- B. Homework problems
- C. Quizzes and exams

VI. EVALUATION METHODS (may include but are not limited to)

- A. Attendance and participation
- B. Homework problems
- C. Assignments
- D. Quizzes and exams
- E. Comprehensive final