MATH 124/124E – College Algebra (3-5 Credits)

DESCRIPTION:

Practical applications are the focal point of this course. Topics include equations and inequalities; linear, quadratic, polynomial, exponential and logarithmic functions and their graphs; solutions of systems of linear equations; matrices; and sequences and series.

Prerequisite: MATH 096 or MATH 097 both with a Grade of C or Better; or a Satisfactory ACT/SAT/Placement Test Score.
NOTE: This course serves as a prerequisite for MATH 176, Applied Calculus for Business. However, this course does NOT serve as a prerequisite for MATH 127 nor is it sufficiently rigorous for entry into Calculus I (MATH 181).

MATH 124E (Expanded):

Students who do not place or advance into the normal 3-credit MATH 124 can self-remediate and retake the placement test. Students with MATH 95E credit or sufficient placement score may enroll into MATH 124E (Expanded), which has the same Student Learning Outcomes as MATH 124 (listed below) and requires a co-requisite 2-credit MATH 24 Learning Support class. Topics in MATH 24 include: Graphing Linear Equations in Two Variables; Working with Real Numbers, Exponents, and Polynomial Arithmetic; Solving Linear Equations and Inequalities; Writing Equations of Lines Given Two Points; Solving Systems of Equations; Working with Functions and Function Notation; Graphing Functions; Factoring Polynomials; Working with Rational Expressions; Solving Rational Equations; perform Arithmetic with Irrational Numbers; Solving Radical Equations; and Solving Quadratic Equations.

MATH 124E Prerequisite: MATH 095E with a grade of C or better; or a satisfactory ACT/SAT/Placement Test Score.
MATH 124E Co-requisite: MATH 24

STUDENT LEARNING OUTCOMES:

a. Solve equations and inequalities.
b. Graph linear, exponential, polynomial, absolute value, square root, piece-wise defined, and logarithmic functions.
c. Analyze properties of functions.
d. Solve systems of linear equations in two and three variables using the substitution, addition, and/or matrix method.
e. Solve problems involving matrices, sequences, and series.
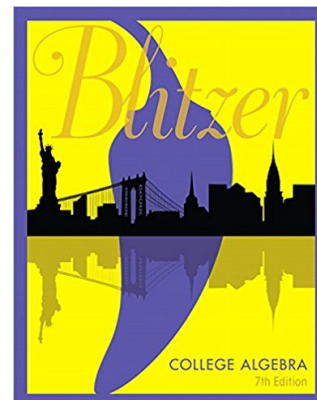f. Apply and extend all concepts.

TEXT:

Titles: *College Algebra, 7th edition;
Authors: Blitzer;
Publisher: Pearson;
ISBN-13: 978-0134469164

*Note: Full-time instructors have the right to use no text or a different text.

OUTLINE:

- **Equations and Inequalities**: Graphs, Linear Equations, Models, Applications, Complex Numbers, Quadratic Equations, Linear and Absolute Value Inequalities (Blitzer, Chapter 1)
- **Functions and Graphs**: Functions, Graphs, Slope, Transformations of Functions, Combinations of Functions, Composite Functions, Inverse Functions (Blitzer, Sections 2.1-2.7)
- **Quadratic and Polynomial Functions**: Quadratic Functions, Polynomial Functions, Modeling (Blitzer, Sections 3.1-3.2, 3.7)
- **Exponential and Logarithmic Functions**: Exponential Functions, Logarithmic Functions, Properties of Logarithms, Equations, Growth and Decay (Blitzer, Chapter 4)
- **Systems of Linear Equations and Inequalities in Two Variables**: (Blitzer, Sections 5.1, 5.5)
- **Matrices**: Solutions to Linear Systems, Operations, Applications (Blitzer, Sections 6.1, 6.3)
- **Sequences and Series**: Sequences, Summation Notation, Arithmetic Sequences, Geometric Sequences, Series (Blitzer, Sections 8.1-8.3)

EVALUATION:

Grades may be determined by student performance in one or more of the following areas: in-class tests, take-home tests, homework assignments, quizzes, special projects, papers, attendance, and class participation. Degree of importance and types of assessment used will depend on the instructor.

This course satisfies the math requirement in the General Education Core component for selected degree and certificate programs at CSN.