Weekly Objectives for the New MAT110

**Topic 1: Real Number System, Linear Inequalities, and Linear Equations**

**Week 1(Chapters 1 and 2)**

**Objectives:**

1. Use exponents and order of operations to evaluate expressions. 1.3
2. Determine the factors and multiples of two or more numbers 1.3 determine factors custom
3. Identify and locate real numbers on the number line. 1.1
4. Use the properties of real numbers to simplify expressions. 1.4
5. Translate word phrases into algebraic expressions. 2.3
6. Translate algebraic expressions 2.3
7. Solve problems involving linear equations. 2.1
8. Solve formulas for a particular variable. 2.2
9. Solve linear inequalities. 2.5
10. Graph solutions of linear inequalities on a number line. 2.5
11. Solve absolute value equations.7
12. Use interval notation to express sets of real numbers. 1.1

**Topic 2: Graphs, Linear Equations, and Functions and Systems of Linear Equations**

**Week 2(Chapters 3 and 4)**

**Objectives:**

1. Use the Cartesian coordinate system to graph ordered pairs and equations 3.1, 3.3
2. Determine the slope of a line 3.2
3. Graph linear equations in two variables. 3.3
4. Write equations of lines 3.3
5. Graph linear inequalities 3.4
6. Determine domain and range of functions 3.5
7. Determine whether an ordered pair is a solution to a system of linear equations. 4.1
8. Solve a system of linear equations by graphing, substitution, and elimination. 4.1

**Topic 3: Exponents, Polynomials, and Factoring**

**Week 3 (Chapters 5 and 6)**

**Objectives:**

1. Simplify expressions using exponent rules. 5.1
2. Write a number in scientific notation. 5.1
3. Identify polynomials and their characteristics.5.2
4. Perform addition and subtraction of polynomials.5.2
5. Perform multiplication and division of polynomials.5.4, 5.5
6. Factor out a greatest common factor of a polynomial. 6.1
7. Perform factoring by grouping on a polynomial. 6.1
8. Factor different types of trinomials. 6.2
9. Factor the difference of two squares. 6.3

**Topic 4: Rational Expressions and Equations**

**Week 4 (Chapter 7)**

**Objectives:**

1. Simplify rational expressions. 7.1
2. Multiply and divide rational expressions. 7.1
3. Add and subtract rational expressions. 7.2
4. Solve rational equations. 7.4
5. Solve problems involving variation. 7.6

**Topic 5: Radical Expressions and Equations**

**Week 5 (Chapter 8)**

**Objectives:**

1. Simplify and evaluate radical expressions. 8.1, 8.3
2. Write exponential expressions as radicals and vice versa. 8.2
3. Add and subtract radical expressions. 8.4
4. Multiply and divide radical expressions, including rationalizing denominators. 8.5
5. Solve radical equations. 8.6
6. Perform operations on complex numbers. 8.7

**Topic 6: Quadratic Equations and Functions**

**Week 6 (Section 6.5 from Chapter 6 and Sections 9.1-9.2, 9.4 from Chapter 9, and 10.1 - 10.2 from Chapter 10)**

**Objectives:**

1. Solve quadratic equations by factoring. 6.5
2. Solve quadratic equations using the square root property. 9.1
3. Solve quadratic equations by completing the square. 9.1
4. Solve quadratics equations using the quadratic formula. 9.2
5. Graph quadratic functions. 10.2
6. Perform function operations 10.1

**Topic 7: Exponential and Logarithmic Functions**

**Week 7 (Chapter 11)**

**Objectives:**

1. Determine the inverse of a function. 11.1
2. Convert between logarithmic and exponential equations. 11.3
3. Simplify and evaluate logarithmic expressions using the properties of logarithms. 11.4, 11.5
4. Use the change of base formula to evaluate logarithms. 11.5
5. Solve exponential and logarithmic equations. 11.3, 11.6