# Course Syllabus

<table>
<thead>
<tr>
<th>Course Name:</th>
<th>MATV 0057 - 04Z Summer 2016</th>
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<tbody>
<tr>
<td>ALEKS Course:</td>
<td>Florida Math 0022</td>
</tr>
<tr>
<td>Instructor:</td>
<td>Price</td>
</tr>
<tr>
<td>Course Dates:</td>
<td>Begin: 05/12/2016 End: 08/04/2016</td>
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<tr>
<td>Course Content:</td>
<td>410 topics</td>
</tr>
<tr>
<td>Textbook:</td>
<td>Miller/O'Neill/Hyde: Prealgebra and Introductory Algebra, 1st Ed. (McGraw Hill, Paperback) - ALEKS 360</td>
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</tbody>
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## Objectives Covered

<table>
<thead>
<tr>
<th>Objective</th>
<th>Topics</th>
<th>Mastery Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. OBJ 1 Real Numbers &amp; Apps</td>
<td>81 topics</td>
<td>90%</td>
</tr>
<tr>
<td>2. OBJ 2 Fractions</td>
<td>55 topics</td>
<td>90%</td>
</tr>
<tr>
<td>3. OBJ 3 Dec/Prop/Percent</td>
<td>53 topics</td>
<td>90%</td>
</tr>
<tr>
<td>4. OBJ 4 Measurement &amp; Geom.</td>
<td>35 topics</td>
<td>85%</td>
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<tr>
<td>5. OBJ 5 Equality/Inequality</td>
<td>35 topics</td>
<td>85%</td>
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<tr>
<td>6. OBJ 6 Graphing</td>
<td>29 topics</td>
<td>85%</td>
</tr>
<tr>
<td>7. OBJ 7 Exponents</td>
<td>48 topics</td>
<td>90%</td>
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<tr>
<td>8. OBJ 8 Factoring</td>
<td>34 topics</td>
<td>85%</td>
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<tr>
<td>9. OBJ 9 Rationals/Radicals</td>
<td>45 topics</td>
<td>80%</td>
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</tbody>
</table>

### OBJ 1 Real Numbers & Apps (81 topics)

- Subtraction with multiple regrouping steps
- Subtraction and regrouping with zeros
- Word problem with addition or subtraction of whole numbers
- Introduction to properties of addition
- Introduction to multiplication of large numbers
- Multiplication with trailing zeros: Problem type 2
- Multiples: Problem type 2
- Introduction to properties of multiplication
- Word problem with multiplication or division of whole numbers
- Word problem with multiplication and addition or subtraction of whole numbers
- Division with carry
- Division with trailing zeros: Problem type 2
- Word problem on quotient and remainder
- Quotient and remainder: Problem type 2
- Quotient and remainder: Problem type 3
- Division involving quotients with intermediate zeros
- Word problem with division of whole numbers and rounding
- Introduction to inequalities
- Ordering large numbers
- Rounding to tens or hundreds
- Rounding to hundreds or thousands
- Estimating a sum of whole numbers
- Writing expressions using exponents
- Introduction to exponents
- Power of 10: Positive exponent
- Introduction to parentheses
- Introduction to order of operations
- Order of operations with whole numbers
Order of operations with whole numbers and grouping symbols
Order of operations with whole numbers and exponents: Basic
Order of operations with whole numbers and exponents: Advanced
Evaluating an algebraic expression: Whole number addition or subtraction
Evaluating an algebraic expression: Whole number multiplication or division
Evaluating an algebraic expression: Whole numbers with two operations
Evaluating an algebraic expression: Whole number operations and exponents
Additive property of equality with whole numbers
Multiplicative property of equality with whole numbers
Using two steps to solve an equation with whole numbers
Plotting integers on a number line
Writing a signed number for a real-world situation
Ordering integers
Absolute value of a number
Integer addition: Problem type 1
Integer addition: Problem type 2
Integer subtraction: Problem type 1
Integer subtraction: Problem type 2
Integer subtraction: Problem type 3
Addition and subtraction with 3 integers
Word problem with addition or subtraction of integers
Integer multiplication and division
Multiplication of 3 or 4 integers
Operations with absolute value: Problem type 2
Exponents and integers: Problem type 1
Exponents and integers: Problem type 2
Order of operations with integers
Order of operations with integers and exponents
Evaluating a linear expression: Integer multiplication with addition or subtraction
Evaluating a quadratic expression: Integers
Combining like terms: Whole number coefficients
Combining like terms: Integer coefficients
Multiplying a constant and a linear monomial
Distributive property: Whole number coefficients
Distributive property: Integer coefficients
Using distribution and combining like terms to simplify: Univariate
Combining like terms in a quadratic expression
Additive property of equality with integers
Multiplicative property of equality with integers
Additive property of equality with a negative coefficient
Solving a two-step equation with integers
Introduction to solving an equation with parentheses
Introduction to solving an equation with variables on the same side
Solving a linear equation with several occurrences of the variable: Variables on the same side
Solving a linear equation with several occurrences of the variable: Variables on both sides
Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
Writing a one-step expression for a real-world situation
Translating a phrase into a one-step expression
Translating a phrase into a two-step expression
Translating a sentence into a one-step equation
Translating a sentence into a multi-step equation
Solving a word problem with two unknowns using a linear equation

OBJ 2 Fractions (55 topics)

- Divisibility rules for 2, 5, and 10
- Divisibility rules for 3 and 9
- Factors
- Prime numbers
- Prime factorization
- Least common multiple of 2 numbers
- Least common multiple of 3 numbers
- Understanding equivalent fractions
- Equivalent fractions
- Simplifying a fraction
- Ordering fractions with the same denominator
- Using a common denominator to order fractions
- Product of a unit fraction and a whole number
- Product of a fraction and a whole number: Problem type 1
Fraction multiplication
Multiplication of 3 fractions
Multi-step word problem involving fractions and multiplication
The reciprocal of a number
Division involving a whole number and a fraction
Fraction division
Addition or subtraction of fractions with the same denominator
Addition or subtraction of fractions with the same denominator and simplification
Finding the LCD of two fractions
Addition or subtraction of unit fractions
Introduction to addition or subtraction of fractions with different denominators
Addition or subtraction of fractions with different denominators
Fractional part of a circle
Writing a mixed number and an improper fraction for a shaded region
Writing an improper fraction as a mixed number
Writing a mixed number as an improper fraction
Addition or subtraction of mixed numbers with the same denominator
Addition of mixed numbers with the same denominator and carry
Subtraction of mixed numbers with the same denominator and borrowing
Addition or subtraction of mixed numbers with different denominators and no carry or borrow
Subtraction of mixed numbers with different denominators and borrowing
Mixed number multiplication
Mixed number division
Exponents and fractions
Complex fraction without variables: Problem type 1
Signed fraction addition or subtraction: Basic
Signed fraction addition or subtraction: Advanced
Signed fraction multiplication: Basic
Signed fraction multiplication: Advanced
Exponents and signed fractions
Additive property of equality with fractions and mixed numbers
Additive property of equality with signed fractions
Multiplicative property of equality with fractions
Multiplicative property of equality with signed fractions
Solving a multi-step equation given in fractional form
Solving a two-step equation with signed fractions
Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
Solving a fraction word problem using a linear equation of the form Ax = B
Solving a fraction word problem using a linear equation with the variable on both sides
Introduction to the quotient rule of exponents
Quotient of expressions involving exponents

OBJ 3 Dec/Prop/Percent  (53 topics)

Decimal place value: Hundreds to ten thousandths
Introduction to ordering decimals
Ordering decimals
Rounding decimals
Converting a decimal to a proper fraction in simplest form: Advanced
Converting a decimal to a mixed number and an improper fraction without simplifying
Addition of aligned decimals
Decimal addition and subtraction with 3 or more numbers
Decimal multiplication: Problem type 2
Multiplication of a decimal by a power of ten
Word problem with multiplication of a decimal and a whole number
Word problem with decimal addition and multiplication
Division of a decimal by a whole number
Division of a decimal by a 2-digit decimal
Division of a decimal by a power of ten
Word problem with decimal subtraction and division
Ordering fractions and decimals
Using a calculator to convert a fraction to a rounded decimal
Writing ratios for real-world situations
Finding a unit price
Solving a word problem on proportions using a unit rate
Word problem on unit rates associated with ratios of whole numbers: Decimal answers
Solving a proportion of the form x/a = b/c
Word problem on proportions: Problem type 1
Converting between percentages and decimals
Converting a percentage to a fraction in simplest form
• Converting a fraction to a percentage: Denominator of 4, 5, or 10
• Converting a fraction to a percentage: Denominator of 20, 25, or 50
• Converting a fraction to a percentage in a real-world situation
• Finding a percentage of a whole number
• Finding a percentage of a whole number without a calculator: Basic
• Applying the percent equation: Problem type 1
• Applying the percent equation: Problem type 2
• Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
• Writing a ratio as a percentage without a calculator
• Computing a percentage from a table of values
• Finding the sale price given the original price and percent discount
• Finding the sale price without a calculator given the original price and percent discount
• Finding the original price given the sale price and percent discount
• Finding the percentage increase or decrease: Basic
• Finding the percentage increase or decrease: Advanced
• Finding simple interest without a calculator
• Similar polygons
• Indirect measurement
• Identifying numbers as integers or non-integers
• Identifying numbers as rational or irrational
• Signed decimal addition and subtraction
• Signed decimal addition and subtraction with 3 numbers
• Additive property of equality with decimals
• Multiplicative property of equality with decimals
• Solving a two-step equation with signed decimals
• Solving a proportion of the form \((x+a)/b = c/d\)
• Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)

**OBJ 4 Measurement & Geom. (35 topics)**

• Word problem with division of a decimal and a whole number
• Perimeter of a polygon
• Perimeter of a square or a rectangle
• Sides of polygons having the same perimeter
• Finding the missing length in a figure
• Perimeter of a piecewise rectangular figure
• Area of a square or a rectangle
• Perimeter and area on a grid
• Distinguishing between the area and perimeter of a rectangle
• Area of a piecewise rectangular figure
• Area of a triangle
• Area of a parallelogram
• Introduction to a circle: Diameter, radius, and chord
• Circumference of a circle
• Circumference and area of a circle
• Choosing U.S. Customary measurement units
• U.S. Customary unit conversion with whole number values
• Conversions involving measurements in feet and inches
• Adding measurements in feet and inches
• U.S. Customary unit conversion with whole number values: Two-step conversion
• U.S. Customary unit conversion with mixed number values: One-step conversion
• U.S. Customary unit conversion with mixed number values: Two-step conversion
• U.S. Customary area unit conversion with whole number values
• Choosing metric measurement units
• Metric distance conversion with whole number values
• Metric mass or capacity conversion with whole number values
• Metric distance conversion with decimal values
• Metric conversion with decimal values: Two-step problem
• Metric area unit conversion with decimal values
• Time unit conversion with whole number values
• Converting between temperatures in Fahrenheit and Celsius
• Converting between metric and U.S. Customary unit systems
• Converting between compound units: Basic
• Converting between compound units: Advanced
• Finding the radius or the diameter of a circle given its circumference

**OBJ 5 Equality/Inequality (35 topics)**

• Solving a one-step word problem using the formula \(d = rt\)
Finding a percentage of a total amount in a circle graph
Computations from a circle graph
Finding the side length of a rectangle given its perimeter or area
Properties of addition
Properties of real numbers
Solving a linear equation with several occurrences of the variable: Variables on the same side
Solving a linear equation with several occurrences of the variable: Variables on both sides
Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
Solving equations with zero, one, or infinitely many solutions
Solving a decimal word problem using a linear equation with the variable on both sides
Solving a word problem involving rates and time conversion
Finding a side length given the perimeter and side lengths with variables
Finding the perimeter or area of a rectangle given one of these values
Translating a sentence by using an inequality symbol
Translating a sentence into a one-step inequality
Writing an inequality for a real-world situation
Graphing a linear inequality on the number line
Writing an inequality given a graph on the number line
Identifying solutions to a two-step linear inequality in one variable
Additive property of inequality with whole numbers
Additive property of inequality with integers
Additive property of inequality with signed fractions
Additive property of inequality with signed decimals
Multiplicative property of inequality with integers
Multiplicative property of inequality with signed fractions
Solving a two-step linear inequality: Problem type 1
Solving a two-step linear inequality: Problem type 2
Solving a two-step linear inequality with a fractional coefficient
Solving a linear inequality with multiple occurrences of the variable: Problem type 1
Solving a linear inequality with multiple occurrences of the variable: Problem type 2
Solving a linear inequality with multiple occurrences of the variable: Problem type 3

OBJ 6 Graphing  (29 topics)

- Division involving zero
- Solving for a variable in terms of other variables using addition or subtraction: Basic
- Solving for a variable in terms of other variables using multiplication or division: Basic
- Reading a point in the coordinate plane
- Plotting a point in the coordinate plane
- Table for a linear equation
- Finding a solution to a linear equation in two variables
- Graphing a linear equation of the form \( y = mx \)
- Graphing a line given its equation in slope-intercept form: Integer slope
- Graphing a line given its equation in slope-intercept form: Fractional slope
- Graphing a line given its equation in standard form
- Graphing a vertical or horizontal line
- Finding \( x \)- and \( y \)-intercepts given the graph of a line on a grid
- Finding \( x \)- and \( y \)-intercepts of a line given the equation: Basic
- Finding \( x \)- and \( y \)-intercepts of a line given the equation: Advanced
- Graphing a line given its \( x \)- and \( y \)-intercepts
- Graphing a line by first finding its \( x \)- and \( y \)-intercepts
- Classifying slopes given graphs of lines
- Finding slope given the graph of a line on a grid
- Finding slope given two points on the line
- Finding the slope of horizontal and vertical lines
- Graphing a line given its slope and \( y \)-intercept
- Graphing a line through a given point with a given slope
- Finding the slope and \( y \)-intercept of a line given its equation in the form \( y = mx + b \)
- Finding the slope and \( y \)-intercept of a line given its equation in the form \( Ax + By = C \)
- Graphing a line by first finding its slope and \( y \)-intercept
- Writing an equation of a line given its slope and \( y \)-intercept
- Writing an equation and graphing a line given its slope and \( y \)-intercept
- Writing an equation of a line given the \( y \)-intercept and another point

OBJ 7 Exponents  (48 topics)
Factoring a perfect square trinomial with leading coefficient 1
Factoring a perfect square trinomial with leading coefficient greater than 1
Factoring a perfect square trinomial in two variables
Factoring a difference of squares in one variable: Basic
Factoring a difference of squares in one variable: Advanced
Factoring a difference of squares in two variables
Factoring a polynomial involving a GCF and a difference of squares: Univariate
Factoring a polynomial involving a GCF and a difference of squares: Multivariate
Factoring a product of a quadratic trinomial and a monomial
Factoring with repeated use of the difference of squares formula
Solving an equation written in factored form
Finding the roots of a quadratic equation of the form ax^2 + bx = 0
Finding the roots of a quadratic equation with leading coefficient 1
Finding the roots of a quadratic equation with leading coefficient greater than 1
Solving a word problem using a quadratic equation with rational roots

OBJ 9 Rationals/Radicals  (45 topics)

Square root of a perfect square
Using a calculator to approximate a square root
Square root of a rational perfect square
Pythagorean Theorem
Word problem involving the Pythagorean Theorem
Adding rational expressions with different denominators and a single occurrence of a variable
Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
Simplifying a ratio of polynomials: Problem type 1
Simplifying a ratio of multivariate polynomials
Multiplying rational expressions involving multivariate monomials
Multiplying rational expressions made up of linear expressions
Multiplying rational expressions involving quadratics with leading coefficients of 1
Dividing rational expressions involving multivariate monomials
Dividing rational expressions involving linear expressions
Dividing rational expressions involving quadratics with leading coefficients of 1
Introduction to the LCM of two monomials
Least common multiple of two monomials
Adding rational expressions with common denominators and monomial numerators
Adding rational expressions with common denominators and binomial numerators
Adding rational expressions with denominators ax^n and bx^m
Adding rational expressions with multivariate monomial denominators: Basic
Adding rational expressions with multivariate monomial denominators: Advanced
Complex fraction involving multivariate monomials
Finding all square roots of a number
Square roots of perfect squares with signs
Introduction to simplifying a radical expression with an even exponent
Square root of a perfect square monomial
Simplifying the square root of a whole number less than 100
Simplifying the square root of a whole number greater than 100
Simplifying a radical expression with an even exponent
Introduction to simplifying a radical expression with an odd exponent
Simplifying a radical expression with two variables
Introduction to square root addition or subtraction
Square root addition or subtraction
Introduction to simplifying a sum or difference of radical expressions: Univariate
Simplifying a sum or difference of radical expressions: Multivariate
Introduction to square root multiplication
Square root multiplication: Basic
Square root multiplication: Advanced
Introduction to simplifying a product of radical expressions: Univariate
Simplifying a product of radical expressions: Univariate
Simplifying a product of radical expressions: Multivariate
Introduction to simplifying a product involving square roots using the distributive property
Rationalizing a denominator: Quotient involving square roots
Rationalizing a denominator: Square root of a fraction