ALEKS® Course Syllabus

Course Name:	MAT1033 MASTER Online Course - non-spiraled	**Course Code:**	C4CJF-PWHPW
ALEKS Course:	Intermediate Algebra	**Instructor:**	Prof. Harris
Course Dates:	Begin: 10/18/2013 End: 10/18/2014	**Course Content:**	359 topics
Textbook:	Miller/O'Neill/Hyde: Intermediate Algebra, 4th Ed. (McGraw-Hill) - ALEKS 360		

Dates	Objective
10/18/13 - 01/17/14	**1.** Sections R.2-R.4,1.1-1.3 (73 topics)
01/18/14 - 01/24/14	**2.** Sections 2.1 - 2.2 (21 topics)
01/25/14 - 01/31/14	**3.** Sections 2.3 - 2.6 (23 topics)
02/01/14 - 02/07/14	**4.** Sections 3.1 - 3.5 (27 topics)
02/08/14 - 02/14/14	**5.** Sections 4.1 - 4.6 (65 topics)
02/15/14 - 02/21/14	**6.** Sections 4.6 - 4.8 (24 topics)
02/22/14 - 03/14/14	**7.** Sections 5.1 - 5.2 (17 topics)
03/15/14 - 03/21/14	**8.** Sections 5.3 - 5.4 (35 topics)
03/22/14 - 03/28/14	**9.** Sections 5.5 - 5.6 (15 topics)
03/29/14 - 04/04/14	**10.** Sections 6.1, 6.2, 6.3 (31 topics)
04/05/14 - 04/11/14	**11.** Sections 6.4 - 6.6, 6.8 (25 topics)
04/12/14 - 04/25/14	**12.** Section 7.1 - 7.3 (9 topics)

Sections R.2-R.4,1.1-1.3 (73 topics, due on 01/17/14)

- Plotting integers on a number line
- Square root of a perfect square
- 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
- Addition and subtraction with 4 or 5 integers
- Integer multiplication and division
- Multiplication of 3 or 4 integers
- Division involving zero
- Least common multiple of 2 numbers
- Signed fraction addition or subtraction: Basic
- Signed fraction subtraction involving double negation
- Signed fraction addition or subtraction: Advanced

- Addition and subtraction of 3 fractions involving signs
- Signed fraction multiplication: Basic
- Signed fraction multiplication: Advanced
- Signed fraction division
- Operations with absolute value: Problem type 2
- Exponents and integers: Problem type 1
- Exponents and integers: Problem type 2
- Exponents and signed fractions
- 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
- Using distribution with double negation and combining like terms to simplify: Multivariate
- Combining like terms in a quadratic expression
- Perimeter of a square or a rectangle
- Area of a square or a rectangle
- Additive property of equality with integers
- Additive property of equality with signed fractions
- Multiplicative property of equality with whole numbers
- Multiplicative property of equality with fractions
- Multiplicative property of equality with integers
- Multiplicative property of equality with signed fractions
- Identifying solutions to a linear equation in one variable: Two-step equations
- Additive property of equality with a negative coefficient
- Solving a two-step equation with integers
- Solving a multi-step equation given in fractional form
- 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 monomial numerators
- 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 linear equation with several occurrences of the variable: Fractional forms with binomial numerators
- Solving equations with zero, one, or infinitely many solutions
- Solving for a variable in terms of other variables using addition or subtraction: Basic
- Solving for a variable in terms of other variables using addition or subtraction: Advanced
- Solving for a variable in terms of other variables using multiplication or division: Basic
- Solving for a variable in terms of other variables using multiplication or division: Advanced
- Solving for a variable in terms of other variables using addition or subtraction with division
- Solving for a variable inside parentheses in terms of other variables
- Solving for a variable in terms of other variables in a linear equation with fractions
- 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
- Finding the side length of a rectangle given its perimeter or area
- 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

Sections 2.1 - 2.2 (21 topics, due on 01/24/14)

- Reading a point in the coordinate plane
- Plotting a point in the coordinate plane
- Table for a linear equation
- Identifying solutions to a linear equation in two variables
- 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

Sections 2.3 - 2.6 (23 topics, due on 01/31/14)

- Rewriting a linear equation in the form Ax + By = C
- 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 in slope-intercept form given the slope and a point
- Graphing a line given its equation in point-slope form
- Writing an equation in point-slope form given the slope and a point
- Writing an equation of a line given the y-intercept and another point
- Writing the equation of the line through two given points
- Writing the equations of vertical and horizontal lines through a given point
- Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
- Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
- Identifying parallel and perpendicular lines from equations
- Writing equations of lines parallel and perpendicular to a given line through a point
- Writing and evaluating a function that models a real-world situation: Advanced
- Writing an equation and drawing its graph to model a real-world situation: Advanced
- Identifying functions from relations
- Vertical line test
- Domain and range from ordered pairs
- Table for a linear function
- Evaluating functions: Linear and quadratic or cubic

Sections 3.1 - 3.5 (27 topics, due on 02/07/14)

- Computing a percent mixture
- Graphing a linear inequality 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
- 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 linear inequality with multiple occurrences of the variable: Problem type 1
- Identifying solutions to a system of linear equations
- Classifying systems of linear equations from graphs
- Graphically solving a system of linear equations
- Solving a system of linear equations using substitution
- Solving a system of linear equations using elimination with addition
- Solving a system of linear equations using elimination with multiplication and addition
- Solving a system of linear equations that is inconsistent or consistent dependent
- Interpreting the graphs of two functions
- Solving a word problem involving a sum and another basic relationship using a system of linear equations
- Solving a value mixture problem using a system of linear equations
- Solving a percent mixture problem using a system of linear equations
- Identifying solutions to a linear inequality in two variables
- Graphing a linear inequality in the plane: Vertical or horizontal line

- Graphing a linear inequality in the plane: Slope-intercept form
- Graphing a linear inequality in the plane: Standard form
- Graphing a system of two linear inequalities: Basic
- Graphing a system of two linear inequalities: Advanced

Sections 4.1 - 4.6 (65 topics, due on 02/14/14)

- Evaluating a quadratic expression: Integers
- Understanding the product rule of exponents
- Introduction to the product rule of exponents
- Product rule with positive exponents: Univariate
- Product rule with positive exponents: Multivariate
- Understanding the power rules of exponents
- Introduction to the power of a power rule of exponents
- Introduction to the power of a product rule of exponents
- Power rules with positive exponents: Multivariate products
- Power rules with positive exponents: Multivariate quotients
- Power and product rules with positive exponents
- Simplifying a ratio of multivariate monomials: Basic
- Introduction to the quotient rule of exponents
- Simplifying a ratio of univariate monomials
- Quotient of expressions involving exponents
- Simplifying a ratio of multivariate monomials: Advanced
- Power and quotient rules with positive exponents
- Evaluating expressions with exponents of zero
- Evaluating an expression with a negative exponent: Whole number base
- Evaluating an expression with a negative exponent: Positive fraction base
- Evaluating an expression with a negative exponent: Negative integer base
- Rewriting an algebraic expression without a negative exponent
- Introduction to the product rule with negative exponents
- Product rule with negative exponents
- Quotient rule with negative exponents: Problem type 1
- Quotient rule with negative exponents: Problem type 2
- Power of a power rule with negative exponents
- Power rules with negative exponents
- Power and quotient rules with negative exponents: Problem type 1
- Power and quotient rules with negative exponents: Problem type 2
- Power, product, and quotient rules with negative exponents
- Degree and leading coefficient of a univariate polynomial
- Simplifying a sum or difference of two univariate polynomials
- Simplifying a sum or difference of three univariate polynomials
- Simplifying a sum or difference of multivariate polynomials
- Multiplying a univariate polynomial by a monomial with a positive coefficient
- Multiplying a univariate polynomial by a monomial with a negative coefficient
- Multiplying a multivariate polynomial by a monomial
- Multiplying binomials with leading coefficients of 1
- Multiplying binomials with leading coefficients greater than 1
- Multiplying binomials in two variables
- Multiplying conjugate binomials: Univariate
- Multiplying conjugate binomials: Multivariate
- Squaring a binomial: Univariate
- Squaring a binomial: Multivariate
- Multiplying binomials with negative coefficients
- Multiplication involving binomials and trinomials in one variable
- Dividing a polynomial by a monomial: Univariate
- Dividing a polynomial by a monomial: Multivariate
- Prime numbers
- Greatest common factor of 2 numbers
- Factoring a linear binomial
- Introduction to the GCF of two monomials
- Greatest common factor of three univariate monomials
- Greatest common factor of two multivariate monomials
- Factoring out a monomial from a polynomial: Univariate
- Factoring out a monomial from a polynomial: Multivariate
- Factoring out a binomial from a polynomial: Basic
- Factoring a univariate polynomial by grouping: Problem type 1

- Factoring a univariate polynomial by grouping: Problem type 2
- Factoring a multivariate polynomial by grouping: Problem type 1
- Factoring a multivariate polynomial by grouping: Problem type 2
- Factoring a quadratic with leading coefficient 1
- Factoring a quadratic in two variables with leading coefficient 1
- Factoring out a constant before factoring a quadratic

Sections 4.6 - 4.8 (24 topics, due on 02/21/14)

- Factoring a quadratic with leading coefficient greater than 1: Problem type 1
- Factoring a quadratic with leading coefficient greater than 1: Problem type 2
- Factoring a quadratic with leading coefficient greater than 1: Problem type 3
- Factoring a quadratic in two variables with leading coefficient greater than 1
- Factoring a quadratic with a negative leading coefficient
- 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
- Factoring a sum or difference of two cubes
- 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
- Introduction to the Pythagorean Theorem
- Pythagorean Theorem
- Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

Sections 5.1 - 5.2 (17 topics, due on 03/14/14)

- Restriction on a variable in a denominator: Linear
- Restriction on a variable in a denominator: Quadratic
- Evaluating a rational function: Problem type 1
- Evaluating a rational function: Problem type 2
- Domain of a rational function
- Simplifying a ratio of factored polynomials: Linear factors
- Simplifying a ratio of polynomials using GCF factoring
- Simplifying a ratio of linear polynomials: 1, -1, and no simplification
- 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 polynomials: Problem type 2
- 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

Sections 5.3 - 5.4 (35 topics, due on 03/21/14)

- Introduction to the LCM of two monomials
- Least common multiple of two monomials
- Finding the LCD of rational expressions with linear denominators: Relatively prime
- Finding the LCD of rational expressions with linear denominators: Common factors
- Finding the LCD of rational expressions with quadratic denominators
- Writing equivalent rational expressions with monomial denominators
- Writing equivalent rational expressions with polynomial denominators
- Writing equivalent rational expressions involving opposite factors
- Introduction to adding fractions with variables and common denominators

- Adding rational expressions with common denominators and monomial numerators
- Adding rational expressions with common denominators and binomial numerators
- Adding rational expressions with common denominators and GCF factoring
- Adding rational expressions with common denominators and quadratic factoring
- Adding rational expressions with different denominators and a single occurrence of a variable
- Adding rational expressions with denominators ax and bx: Basic
- Adding rational expressions with denominators ax and bx: Advanced
- Adding rational expressions with denominators ax^n and bx^m
- Adding rational expressions with multivariate monomial denominators: Basic
- Adding rational expressions with linear denominators without common factors: Basic
- Adding rational expressions with linear denominators without common factors: Advanced
- Adding rational expressions with linear denominators with common factors: Basic
- Adding rational expressions with linear denominators with common factors: Advanced
- Adding rational expressions with denominators ax-b and b-ax
- Adding rational expressions involving different quadratic denominators
- Complex fraction without variables: Problem type 1
- Complex fraction without variables: Problem type 2
- Complex fraction involving univariate monomials
- Complex fraction involving multivariate monomials
- Complex fraction: GCF factoring
- Complex fraction: Quadratic factoring
- Complex fraction made of sums involving rational expressions: Problem type 1
- Complex fraction made of sums involving rational expressions: Problem type 2
- Complex fraction made of sums involving rational expressions: Problem type 3
- Complex fraction made of sums involving rational expressions: Problem type 4
- Complex fraction made of sums involving rational expressions: Problem type 6

Sections 5.5 - 5.6 (15 topics, due on 03/28/14)

- Solving a proportion of the form x/a = b/c
- Solving a proportion of the form (x+a)/b = c/d
- Solving a proportion of the form a/(x+b) = c/x
- Solving a rational equation that simplifies to linear: Denominator x
- Solving a rational equation that simplifies to linear: Denominator x+a
- Solving a rational equation that simplifies to linear: Denominators ax and bx
- Solving a rational equation that simplifies to linear: Like binomial denominators
- Solving a rational equation that simplifies to linear: Unlike binomial denominators
- Solving a rational equation that simplifies to linear: Factorable quadratic denominator
- Solving a rational equation that simplifies to quadratic: Proportional form, basic
- Solving a rational equation that simplifies to quadratic: Denominator x
- Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
- Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
- Solving for a variable in terms of other variables in a rational equation: Problem type 1
- Solving for a variable in terms of other variables in a rational equation: Problem type 2

Sections 6.1, 6.2, 6.3 (31 topics, due on 04/04/14)

- Square root of a perfect square
- Introduction to the Pythagorean Theorem
- Pythagorean Theorem
- Square root of a rational perfect square
- Square roots of perfect squares with signs
- Introduction to simplifying a radical expression with an even exponent
- Square root of a perfect square monomial
- Cube root of an integer
- Finding n^{th} roots of perfect n^{th} powers with signs
- Finding the n^{th} root of a perfect n^{th} power fraction
- Finding the n^{th} root of a perfect n^{th} power monomial
- Converting between radical form and exponent form
- Rational exponents: Unit fraction exponents and whole number bases
- Rational exponents: Unit fraction exponents and bases involving signs
- Rational exponents: Non-unit fraction exponent with a whole number base
- Rational exponents: Negative exponents and fractional bases
- Rational exponents: Product rule
- Rational exponents: Quotient rule

- Rational exponents: Products and quotients with negative exponents
- Rational exponents: Power of a power rule
- Rational exponents: Powers of powers with negative exponents
- 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 an odd exponent
- Simplifying a radical expression with two variables
- Simplifying a higher root of a whole number
- Introduction to simplifying a higher radical expression
- Simplifying a higher radical expression: Univariate
- Simplifying a higher radical expression: Multivariate

Sections 6.4 - 6.6, 6.8 (25 topics, due on 04/11/14)

- Introduction to square root addition or subtraction
- Square root addition or subtraction
- Square root addition or subtraction with three terms
- Introduction to simplifying a sum or difference of radical expressions: Univariate
- Simplifying a sum or difference of radical expressions: Univariate
- 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 of higher roots
- Introduction to simplifying a product involving square roots using the distributive property
- Simplifying a product involving square roots using the distributive property: Basic
- Simplifying a product involving square roots using the distributive property: Advanced
- Special products of radical expressions: Conjugates and squaring
- Simplifying a quotient of square roots
- Simplifying a quotient involving a sum or difference with a square root
- Rationalizing a denominator: Quotient involving square roots
- Rationalizing a denominator: Square root of a fraction
- Rationalizing a denominator: Quotient involving a monomial
- Rationalizing a denominator using conjugates: Integer numerator
- Rationalizing a denominator using conjugates: Square root in numerator
- Using i to rewrite square roots of negative numbers
- Simplifying a product and quotient involving square roots of negative numbers

Section 7.1 - 7.3 (9 topics, due on 04/25/14)

- Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
- Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
- Solving an equation of the form $x^2 = a$ using the square root property
- Solving a quadratic equation using the square root property: Exact answers, basic
- Solving a quadratic equation using the square root property: Exact answers, advanced
- Completing the square
- Solving a quadratic equation by completing the square: Exact answers
- Applying the quadratic formula: Exact answers
- Solving a quadratic equation with complex roots