MATH 137s
Intermediate Algebra
4 Credits

Elisa Santee, Instructor
Spring 2014

Course Description: This course continues the development of algebraic skills and concepts. The topics included are linear equations, functions, applications, rational expressions and equations, operations on radicals and rational exponents, quadratic equations, exponential functions.
Prerequisite: Acceptable placement score of a grade of C or above in Math 095.

REQUIRED TEXT and MATERIALS:
Intermediate Algebra, Hendricks, Chow; McGraw Hill; ISBN: 978-0-07-338426-9
ALEKS access code (comes with text)
Graphing Calculator-TI 83 or 84 is acceptable.
Paper, notebooks, writing implements

GRADING POLICY:
There will be exams and quizzes. You are REQUIR#ED to take ALL EXAMS. There are no MAKE-UPS on exams. If you miss an exam you will receive a grade of ZERO. If you cannot be in class the day of the exam you MUST call me prior to class time so accommodations can be made for a make-up exam.

There will be 4 exams, each valued at 20% of your final grade. The final 20% of your grade will be the completion of your ALEKS pie chart. The pie chart must be completed by the date of the final exam.

The arithmetic average of your 4 exams and pie chart work will comprise your final course grade. **REMINDER-A GRADE OF C (75%) or higher is required to move onto the next math course.**

CLASS CANCELLATION: In case of inclement weather, check the college website for class cancellations or call 860-886-0177 for recorded message on the college phone. Also, sign up for emergency text and/or email messages (see the Three Rivers website for directions).

If I need to cancel class, I will do it through your email account with the ALEKS program.

Plagiarism and Academic Honesty: At TRCC, we expect the highest standards of academic honesty. The Board of Trustees' Proscribed Conduct Policy prohibits cheating on examinations, unauthorized collaboration on assignments, unauthorized access to examinations or course materials, plagiarism.

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Homework is assigned at the end of each class. It is a tool for the student to learn the lecture material and to reach a level of competency for the upcoming exams.

DATE	TOPIC	DATE	TOPIC
1/23	Intro to ALEKS		
1/28	Chapter 3	4/22	Chapter 8
1//30		4/24	
2/4	Chapter 3	4/29	Chapter 8
2/6	NO CLASS	5/1	Chapter 9
2/11	Chapter 3	5/6	Chapter 9
2/13	Chapter 4	5/8	Chapter 10
2/18	Chapter 4	5/13	Chapter 10
2/20		5/15	FINAL EXAM
2/24	Chapter 4		
2/27	EXAM 3 & 4		
3/4	Chapter 6		
3/6			
3/11	Chapter 6		
3/13			
3/17-21	SPRING BREAK		
3/25	Chapter7		
3/27			
4/1	Chapter 7		
4/3			
4/8	Chapter 7		
4/10			
4/15	EXAM 6 & 7		
4/17	Chapter 8		

ALEKS® Course Syllabus

Course Name:	Spring 2014 MAT 137E – 12860 MAT* K137S T2	**Course Code:**	WWRAP-YMAYI
ALEKS Course:	Intermediate Algebra	**Instructor:**	Prof. Santee
Course Dates:	Begin: 01/23/2014 End: 05/17/2014	**Course Content:**	200 topics
Textbook:	Hendricks/Chow: Intermediate Algebra, 1st Ed. (McGraw-Hill) - ALEKS 360		

Objectives Covered

1. Chapter 3 Lesson 1-2
2. Chapter 3,4 Lesson 3-4
3. Chapter 4 Lesson 5-6
4. Chapt 4 and 6 Lesson 7-8
5. Chapter 6 Lesson 9-10
6. Chap 6, 7 Lesson 11-12
7. Chapter 7 Lesson 13-14
8. Chapt 7, 8 Lesson 15,16
9. Chapter 8 Lesson 17-18
10. Chapter 8 Lesson 19-20
11. Chapter 9 Lesson 21-22
12. Chap 9,10 Lesson 23-24
13. Chapter 10 Lesson 25

A student must meet the Mastery Level percent for each Objective in order to move on to the next Objective. For example, if a Mastery Level is set at 90% for the first Objective, students must score 90% or higher in order to move on to the second Objective. The final day that Objectives can be completed is 05/17/14.

Chapter 3 Lesson 1-2 (13 topics)

- Reading a point in the coordinate plane
- Plotting a point in the coordinate plane
- Finding a solution to a linear equation in two variables

- Determining whether given points lie on one, both, or neither of 2 lines given equations
- Graphing a line given its equation in slope-intercept form
- Graphing a parabola of the form $y = ax^2$
- Graphing an absolute value equation in the plane: Advanced
- Domain and range from ordered pairs
- Table for a linear function
- Variable expressions as inputs of functions
- Introduction to functions: Notation and graphs
- Identifying functions from relations
- Vertical line test

Chapter 3,4 Lesson 3-4   (4 topics)

- Table for a linear function
- Domain and range from the graph of a continuous function
- Domain of a square root function
- Finding the slope of a line given its equation

Chapter 4 Lesson 5-6   (9 topics)

- Finding the slope of a line given its equation
- Graphing a line given its x- and y-intercepts
- Graphing a line given its equation in standard form
- Graphing a vertical or horizontal line
- Finding x- and y-intercepts of a line given the equation: Advanced
- Graphing a line through a given point with a given slope
- Finding slope given the graph of a line on a grid
- Finding slope given two points on the line
- Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C

Chapt 4 and 6 Lesson 7-8   (11 topics)

- Graphing a parabola of the form $y = ax^2$
- Writing an equation of a line given the y-intercept and another point
- Writing the equation of a line given the slope and a point on the line
- Writing the equation of the line through two given points
- Writing the equations of vertical and horizontal lines through a given point
- Writing an equation and drawing its graph to model a real-world situation
- Application problem with a linear function: Finding a coordinate given two points
- Writing equations of lines parallel and perpendicular to a given line through a point
- Degree and leading coefficient of a univariate polynomial
- Degree of a multivariate polynomial
- Graphing a cubic function of the form $y = ax^3$

Chapter 6 Lesson 9-10   (13 topics)

- Introduction to the GCF of two monomials
- Greatest common factor of two multivariate monomials
- Factoring out a monomial from a polynomial: Univariate
- Factoring a polynomial by grouping: Problem type 1
- Factoring a quadratic with leading coefficient 1
- Factoring a quadratic with leading coefficient greater than 1
- Factoring a quadratic in two variables with leading coefficient greater than 1
- Factoring a perfect square trinomial
- Factoring a product of a quadratic trinomial and a monomial

- Factoring a difference of squares
- Factoring with repeated use of the difference of squares formula
- Factoring a sum or difference of two cubes
- Factoring a polynomial by grouping: Problem type 2

Chap 6, 7 Lesson 11-12   (19 topics)

- Factoring a difference of squares
- Factoring with repeated use of the difference of squares formula
- Factoring a sum or difference of two cubes
- Factoring a polynomial by grouping: Problem type 2
- 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 quadratic equation needing simplification
- Solving an equation written in factored form
- Roots of a product of polynomials
- Solving a word problem using a quadratic equation with rational roots
- Writing a quadratic equation given the roots and the leading coefficient
- Multiplying rational expressions involving multivariate monomials
- Multiplying rational expressions involving quadratics with leading coefficients of 1
- Dividing rational expressions involving multivariate monomials
- Dividing rational expressions involving quadratics with leading coefficients of 1
- Simplifying a ratio of polynomials: Problem type 1
- Simplifying a ratio of polynomials: Problem type 2
- Domain of a rational function
- Dividing a polynomial by a monomial: Univariate

Chapter 7 Lesson 13-14   (15 topics)

- Introduction to the LCM of two monomials
- Least common multiple of two monomials
- Adding rational expressions with common denominators and binomial numerators
- Adding rational expressions with different denominators: ax, bx
- Adding rational expressions with multivariate monomial denominators: Advanced
- Adding rational expressions with different denominators: x+a, x+b
- Adding rational expressions involving different quadratic denominators
- Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
- 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: Unlike binomial denominators
- Solving a rational equation that simplifies to linear: Denominators a, x, or ax
- 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 a proportion of the form a/(x+b) = c/x

Chapt 7, 8 Lesson 15,16   (13 topics)

- Square root of a perfect square
- Algebraic symbol manipulation: Problem type 2
- Domain of a square root function
- Word problem on proportions: Problem type 1
- Word problem involving multiple rates

- Solving a work problem using a rational equation
- Square root of a rational perfect square
- Simplifying products or quotients of higher radicals with different indices: Multivariate
- Rational exponents: Non-unit fraction exponent with a whole number base
- Rational exponents: Negative exponents and fractional bases
- Rational exponents: Products and quotients with negative exponents
- Rational exponents: Powers of powers with negative exponents
- Converting between radical form and exponent form

Chapter 8 Lesson 17-18 (13 topics)

- Simplifying the square root of a whole number less than 100
- Square root of a perfect square monomial
- Simplifying a radical expression with an even exponent
- Simplifying a radical expression with two variables
- Pythagorean Theorem
- Simplifying a higher root of a whole number
- Simplifying a higher radical expression: Multivariate
- Square root addition or subtraction
- Simplifying a sum or difference of radical expressions: Multivariate
- Square root multiplication: Advanced
- Simplifying a product of radical expressions: Multivariate
- Simplifying a product involving square roots using the distributive property: Advanced
- Special products of radical expressions: Conjugates and squaring

Chapter 8 Lesson 19-20 (3 topics)

- Solving a radical equation that simplifies to a linear equation: One radical, basic
- Solving a radical equation that simplifies to a quadratic equation: One radical
- Using i to rewrite square roots of negative numbers

Chapter 9 Lesson 21-22 (10 topics)

- Graphing a parabola of the form $y = ax^2$
- Graphing a parabola of the form $y = (x-a)^2 + c$
- How the leading coefficient affects the shape of a parabola
- Classifying the graph of a function
- Solving a quadratic equation using the square root property: Problem type 1
- Solving a quadratic equation using the square root property: Problem type 2
- Completing the square
- Solving a quadratic equation by completing the square
- Word problem involving the maximum or minimum of a quadratic function
- Graphing a parabola of the form $y = ax^2 + bx + c$

Chap 9,10 Lesson 23-24 (7 topics)

- Applying the quadratic formula: Exact answers
- Solving a quadratic equation with complex roots
- Discriminant of a quadratic equation
- Solving a word problem using a quadratic equation with irrational roots
- Compound interest
- Solving an exponential equation by finding common bases: Linear and quadratic exponents
- Graphing an exponential function and its asymptote: $f(x) = a(b)^x$

Chapter 10 Lesson 25 (5 topics)

- Solving exponential equations by using logarithms and natural logarithms: Decimal answers
- Finding a final amount in a word problem on exponential growth or decay
- Finding the time to reach a limit in a word problem on exponential growth or decay
- Finding the initial or final amount in a word problem on exponential growth or decay
- Finding the rate or time in a word problem on exponential growth or decay