



## Faculty Review of OER eTextbook

**Reviewed Work:** [Department of Mathematics at the University of Utah College Algebra Videos](#)

**Textbook Author:** The University of Utah, Math Department

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**Course Number:** CMAT 1213 College Algebra

[Louisiana Master Course Articulation Matrix](#)

**Faculty Reviewer:** Debra Kopsco, Senior Instructor, Louisiana State University

### Faculty Review

<i>Topic at Objective Level</i>	Covered	To what degree		
		Below avg	Average	Above avg
<b>Linear Equations</b>				
Finding the least common denominator of an expression - prerequisite				
Recognizing linear equations				
Solving linear equations with integer coefficients				
Solving linear equations involving fractions				
Solving linear equations involving decimals				
Solving equations that lead to linear equations				
<b>Quadratic Equations</b>				
Simplifying radical expressions - prerequisite				
Factoring trinomials				
Solving quadratic equations by factoring and the zero product property				
Solving quadratic equations using the square root property				
Solving quadratic equations using the quadratic formula	X			X
Using the discriminant to determine the type of solutions of a quadratic equation	X		X	
<b>Other Types of Equations</b>				
Simplifying expressions - prerequisite				
Solving higher-order polynomial equations				
Solving equations that are quadratic in form				
Solving equations involving single radicals				
<b>Linear Inequalities</b>				
Solving linear inequalities				

Solving three-part inequalities				
Reading Assessment Questions for etext section				
<b>Absolute Value Equations and Inequalities</b>				
Solving an absolute value equation				
Solving an absolute value “less than” inequality				
Solving an absolute value “greater than” inequality				
<b>The Rectangular Coordinate System</b>				
Finding the average of two numbers - <b>prerequisite</b>				
Simplifying radicals				
Plotting ordered pairs				
Finding the midpoint of a line segment using the midpoint formula	X		X	
Finding the distance between two points using the distance formula	X	X		
<b>Circles – optional</b>				
Completing the square to form a perfect square trinomial - prerequisite				
Writing the standard form of an equation of a circle				
Sketching the graph of a circle given its equation in standard form				
Sketching the graph of a circle given its equation in general form				
<b>Lines</b>				
Solving a linear equation for the variable y - <b>prerequisite</b>				
Determining the slope of a line	X		X	
Sketching a line given a point and the slope	X		X	
Finding the equation of a line using the point-slope form	X	X		
Finding the equation of a line using the slope-intercept form	X	X		
Finding the equation of a line in general form	X	X		
Finding the slope and the y-intercept of a line given the equation of the line	X			X
Sketching lines by plotting intercepts	X		X	
Finding the equation of a horizontal line and a vertical line				
Sketching a line given its equation in general form	X		X	
<b>Parallel and Perpendicular Lines</b>				
Determining whether two lines are parallel, perpendicular, or neither				
Finding the equations of parallel and perpendicular lines	X	X		
Reading Assessment Questions for etext section				
<b>Relations and Functions</b>				
Simplifying algebraic expressions				
Understanding the definitions of relations and functions	X		X	
Determining whether equations represent functions	X	X		

Using function notation; Evaluating functions; Difference quotient	X Note: Did not cover difference quotient		X	
Using the vertical line test	X		X	
Determining the domain of a function given the equation	X			X
<b>Properties of a Function's Graph</b>				
Given a function, evaluate $f(-x)$ - prerequisite				
Finding the average rate of change for a function				
Determining the intercepts of a function	X		X	
Determining the domain and range of a function from its graph	X		X	
Determining whether a function is increasing, decreasing, or constant	X	X		
Determining relative maximum and relative minimum values of a function	X	X		
Determining whether a function is even, odd, or neither	X		X	
Determining information about a function from a graph	X	X		
<b>Graphs of Basic Functions; Piecewise Functions</b>				
Sketching the graphs of the basic functions	X	X		
Analyzing piecewise-defined functions				
<b>Transformations of Functions</b>				
Using vertical shifts to graph functions	X	X		
Using horizontal shifts to graph functions	X		X	
Using combinations of vertical and horizontal shifts to graph functions	X		X	
Using combinations of reflections and either vertical or horizontal shifts to graph functions	X Note: Did not cover reflections about the y-axis	X		
Using vertical stretches or vertical compressions to graph functions	X Note: Did not cover vertical compression		X	
Using combinations of transformations to graph functions				
<b>Composite Functions</b>				
Simplifying fractional expressions - prerequisite				
Finding combined functions and their domains				
Forming and evaluating composite functions	X			X
Determining the domain of composite functions				

<b>One-to-One Functions; Inverse Functions</b>				
Understanding the definition of a one-to-one function				
Determining whether a function is one-to-one using the horizontal line test	X	X		
Understanding and verifying inverse functions				
Sketching the graphs of inverse functions	X		X	
Finding the inverse of a one-to-one function	X		X	
<b>Quadratic Functions</b>				
Determining whether the graph of a quadratic function opens up or down				
Determining properties of a quadratic function in standard form and graph the function	X		X	
Determining properties of a quadratic function by using the vertex formula and graph the function	X Note: Complete d the square to get the quadratic in standard form		X	
Determining the equation of a quadratic function given its graph	X		X	
<b>Applications and Modeling of Quadratic Functions</b>				
Maximizing projectile motion functions	X		X	
Reading Assessment Questions for etext section				
<b>The Graphs of Polynomial Functions</b>				
Understanding the definition of a polynomial function	X			X
Sketching the graphs of power functions using transformations				
Determining the end behavior of polynomial functions	X			X
Determining the intercepts of a polynomial function				
Determining the real zeros of polynomial functions and their multiplicities	X			X
Sketching the graph of a polynomial function	X			X
Determining a possible equation of a polynomial function given its graph	X	X		
<b>Rational Functions and Their Graphs</b>				
Finding the domain and intercepts of rational functions				
Identifying vertical asymptotes	X		X	
Identifying horizontal asymptotes	X		X	
Using transformations to sketch the graphs of rational functions				
Sketching the graph of rational functions containing removable discontinuities	X		X	
Sketching rational functions	X		X	

<b>Exponential Functions</b>				
Rewriting expressions in the exponential form				
Evaluating exponential expressions				
Sketching the graphs of exponential functions	X		X	
Determining possible equations of exponential functions given their graphs				
Sketching the graphs of exponential functions using transformations	X		X	
Solving exponential equations by relating the bases	X	X		
Solving applications of exponential functions				
<b>Logarithmic Functions</b>				
Changing equations between exponential form and logarithmic form	X		X	
Evaluating logarithmic expressions	X			X
Using properties of logarithms to evaluate expressions				
Using the common and natural logarithms	X		X	
Sketching the graphs of logarithmic functions using transformations	X	X		
Finding the domain of logarithmic functions	X	X		
<b>Properties of Logarithms</b>				
Using the product rule, quotient rule, and/or power rule for logarithms to expand and evaluate expressions	X		X	
Condensing logarithmic expressions and evaluating	X		X	
Solving logarithmic equations using the logarithm property of equality	X		X	
Using the change of base formula	X		X	
<b>Exponential and Logarithmic Equations</b>				
Evaluating exponential and logarithmic expressions using a calculator				
Solving exponential equations	X			X
Solving logarithmic equations	X	X		
<b>Applications of Exponential and Logarithmic Functions</b>				
Solving compound interest applications	X		X	
Solving applications involving exponential growth and decay	X			X
<b>Systems of Linear Equations in Two Variables</b>				
Verifying solutions to a system of linear equations in two variables				
Solving a system of linear equations using the substitution method	X		X	
Solving a system of linear equations using the elimination method	X		X	
Solving a system of linear equations using the substitution or elimination method				
Solving applied problems using a system of linear equation	X		X	
<b>Other Topics</b>				
Synthetic division				

Remainder and Factor Theorem				
Complex numbers				
Rational Root Theorem				
Solve systems of nonlinear equations				
Multi-variable linear system of equations				
Partial fraction decomposition				
System of inequalities				
Linear Programming				
Matrices and systems of linear equations				
Operations of matrices				
Inverse of a square matrix				
Determinant of a square matrix				
Applications of matrices				
Sequences and series				
Arithmetic sequences and series				
Geometric sequences and series				
The Binomial Theorem				

<b>Total</b>	<b>66/105</b>	<b>18/66</b>	<b>37/66</b>	<b>11/66</b>
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**Additional review of [Department of Mathematics at the University of Utah College Algebra Videos](#) based on [the Open Textbooks Library/Network Rubric](#)**

**Faculty Reviewer:** Senior Instructor Debra Kopsco

**Comprehensiveness**

The videos on College Algebra at the Mathematics Department of the University of Utah cover approximately 63% of the topics listed on the Louisiana CMAT 1213 College Algebra. Of the topics covered in the videos, approximately 73% were covered average to above average degree. There are several videos on this site that cover topics that are not listed in the Louisiana CMAT College Algebra matrix description.

**Content Accuracy**

There were several mistakes in the videos. I counted 14.

**Relevance Longevity**

Content is up-to-date, but not in a way that will quickly make the videos obsolete within a short period of time.

**Clarity**

The writing in the videos was mostly legible. In a few cases, the handwriting was difficult to read.

### **Consistency**

The videos are internally consistent in terms of terminology and framework.

### **Modularity**

There were 24 videos that covered the topics listed on the Louisiana CMAT College Algebra matrix description. The videos could be easily assigned at different points within the course. The videos ranged in length from 7 minutes to 34 minutes with the average of 21.5 minutes.

### **Organization Structure Flow**

The topics in the videos are presented in a logical, clear fashion.

### **Interface**

There were several places where the text at the top of the video was not visible.

### **Grammatical Errors**

The videos contain no grammatical errors that I noticed.

### **Cultural Relevance**

The videos are not culturally insensitive or offensive in any way.



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