

Revised January 8, 2009

LINCOLN UNIVERSITY

Spring 2009

COURSE: MATH 10 - COLLEGE MATHEMATICS - 3 units
INSTRUCTOR: Prof. Leonid Romanyuk
OFFICE HOURS: MW 11:50-12:25, room 402, e-mail: romanyuk@lincolnuca.edu
TEXT: **College Algebra**, by Michael Sullivan, 8th Edition, Prentice Hall, 2008, ISBN: 0132402866
REQUIRED TOOLS: A scientific or graphical calculator and Excel spreadsheets
OPTIONAL: Publisher's Web site student resources <http://vig.prenhall.com/>

CATALOG DESCRIPTION:

Elementary algebra: fundamental algebraic concepts and operations, number bases, linear equations and inequalities, functions, graphing. Intermediate algebra: study of algebra including exponents and radical, polynomials, geometric series, rational expressions, quadratic equations, and logarithms. (3 units)

LEARNING OBJECTIVES:

The students will review the basic concepts and techniques of elementary and intermediate algebra, get complete coverage of the function and graph concepts, and learn how to apply them. The goal is to introduce students to problem solving and mathematical modeling using algebra and to build a solid foundation in the principles of mathematical thinking.

INSTRUCTIONAL METHODS:

Lecture method is used in combination with the practical use of a calculator, the Internet and business software to solve application problems. The emphasis will be on learning by doing. Every student must participate in an intensive classroom activity. Reading, writing, and problem solving assignments will be made throughout the course

TOPICAL OUTLINE OF THE COURSE: daily schedule of topics is attached

REQUIREMENTS:

All students are required to attend the class. Continuous assessment is emphasized. Written or oral quizzes will be given every week. Students must complete all assignments and take all quizzes, mid-term exam and final exam ON THE DATES DUE. Plagiarism will result in the grade "F" and a report to the administration. *No computers or cellular phones will be allowed to use during tests.*

GRADING:

Classroom activities	every week	10%
Quizzes	every week	10%
Assignments	every week	30%
Mid-term exam	10 th week	20%
Final exam	18 th week	30%

Less than 60% total is an "F"; 75% total is "C+". Other grades will be calculated "on the curve" from the scores above.

SPRING 2009 SCHEDULE OF TOPICS

Week #	Topics	Chapter #
1 1/12/09	Real Numbers. Algebra Essentials. Geometry Essentials. Polynomials. Factoring Polynomials. Rational Expressions.	R
2 1/19/09	Martin Luther King Jr. Birthday (Holiday)	
3 1/26/09	n th Roots; Rational Exponents.	R
4 2/02/09	Linear Equations. Quadratic Equations. Radical Equations; Equations Quadratic in Form; Factorable Equations. Solving Inequalities. Equations and Inequalities Involving Absolute Value.	1
5 2/09/09	The Distance and Midpoint Formulas. Graphs of Equations in Two Variables; Intercepts; Symmetry. Lines. Circles. Variation.	2
6 2/16/09	President's Day (Holiday)	
7 2/23/09	Functions. The Graph of a Function. Properties of Functions. Library of Functions; Piecewise-defined Functions.	3
8 3/02/09	Graphing Techniques: Transformations. Mathematical Models: Building Functions. Linear Functions and Their Properties. Building Linear Functions from Data.	3 - 4
9 3/09/09	Quadratic Functions and Their Properties. Quadratic Models. Inequalities Involving Quadratic Functions.	4
10 3/16/09	Review. MIDTERM EXAM	R, 1 - 4
11 3/23/09	Polynomial Functions and Models. Properties of Rational Functions. The Graph of a Rational Function. Polynomial and Rational Inequalities.	5
12 3/30/09	Composite Functions. One-to-One Functions; Inverse Functions. Exponential Functions. Exponential Equations.	6
13 4/06/09	Logarithmic Functions. Properties of Logarithms. Logarithmic Equations.	6
14 4/13/09	Compound Interest. Exponential Growth and Decay Models; Newton's Law; Logistic Growth and Decay Models. Building Exponential, Logarithmic, and Logistic Functions from Data.	6
15 4/20/09	Systems of Linear Equations: Substitution and Elimination. Systems of Nonlinear Equations. Systems of Inequalities.	8
16 4/27/09	Sequences. Arithmetic Sequences. Geometric Sequences; Geometric Series.	9
17 5/04/09	Review.	1 - 9
18 5/11/09	COMPREHENSIVE FINAL EXAM	1 - 9