



# COLLEGE MATHEMATICS

## Course Syllabus



<b>Course No:</b>	Math 10	<b>Instructor:</b>	Prof. Leonid Romanyuk
<b>Semester:</b>	Spring 2011	<b>Phone:</b>	(510) 628-8024
<b>Units:</b>	3	<b>E-mail:</b>	lromanyuk@lincolnuca.edu
<b>Class hours:</b>	Monday 9:00 am – 11:45 am	<b>Office Hours:</b>	MWTH 11:50 am -12:25 pm
<b>Class Room:</b>	TBA	<b>Office Room:</b>	402

### COURSE DESCRIPTION:

Elementary algebra: fundamental algebraic concepts and operations, number bases, linear equations and inequalities, functions, graphing. Intermediate algebra: study of algebra including exponents and radicals, 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, business software, and the Internet resources 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 weekly throughout the course.

### REQUIRED MATERIALS:

**TEXTBOOK:** **College Algebra**, by Michael Sullivan, 8th Edition, Prentice Hall, 2008, ISBN-10: 0132402866

**TOOLS:** A scientific or graphical calculator and Microsoft Excel software

**OPTIONAL:** Student Solutions Manual for College Algebra - Standalone, by Michael Sullivan, Prentice Hall, 2008, ISBN-10: 0321621050  
Publisher's Web site student resources <http://vig.prenhall.com/>

## **OTHER 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**. Talking in class, using cell phones, coming late, leaving the room at times other than at break time is not allowed. Plagiarism/cheating will result in the grade "F" and a report to the administration.

## **TESTING:**

Classroom activities	every week	10%
Quizzes	every week	10%
Assignments	every week	10%
Mid-term exam	3/14/2011	30%
Final exam	as scheduled	40%

There will be no make-up for a missed quiz or participation in a classroom activity. No make-up exams will be given unless you have the instructor's prior approval obtained in person before the exam date, with the exception of an extreme emergency. Late assignments will get no credit or reduced credit. *Students will not be allowed to use computers or cellular phones during tests.*

## **GRADING:**

Less than 50% total is an "F"; 75% total is "C+". Other grades will be calculated "on the curve" from the scores above.

## **COURSE SCHEDULE:**

Weekly schedule of topics is attached. Students should read every chapter of the textbook on the topic to be discussed in class before they come to class. Be ready to answer in writing all review questions and to solve problems at the end of the chapter.

## **ASSIGNMENTS:**

Each assignment is due on the Monday of the next week after it is assigned. Additional assignments based on the Internet and library resources can be given during the semester. Take a folder or a notebook and create an Assignment Notebook. You will put in it the solutions and other results of all your assignments. The instructor can ask you to turn in this folder / notebook and grade your work at any time during the semester.

## **MODIFICATION OF THE SYLLABUS:**

**This syllabus was updated on November 30, 2010.** The instructor reserves the right to modify this syllabus at any time during the semester. An announcement of any changes will be made in the classroom.

## SPRING 2011 SCHEDULE OF TOPICS

*Please read every chapter before you come to class*

Date	Topics	Chapters
1/24/11	Real Numbers. Algebra Essentials. Geometry Essentials. Polynomials.	R.1 - R.4
1/31/11	Factoring Polynomials. Rational Expressions. $n$ th Roots; Rational Exponents.	R.5 - R.8
2/07/11	Linear Equations. Quadratic Equations. Radical Equations; Equations Quadratic in Form; Factorable Equations. Solving Inequalities. Equations and Inequalities Involving Absolute Value.	1
2/14/11	The Distance and Midpoint Formulas. Graphs of Equations in Two Variables; Intercepts; Symmetry. Lines. Circles. Variation.	2
2/21/11	Presidents' Day (Holiday)	
2/28/11	Functions. The Graph of a Function. Properties of Functions. Library of Functions; Piecewise-defined Functions.	3
3/07/11	Graphing Techniques: Transformations. Mathematical Models: Building Functions. Linear Functions and Their Properties. Building Linear Functions from Data.	3 - 4
3/14/11	Review. <b>MIDTERM EXAM</b>	R, 1 - 4
3/21/11	Quadratic Functions and Their Properties. Quadratic Models. Inequalities Involving Quadratic Functions.	4
3/28/11	Polynomial Functions and Models. Properties of Rational Functions. The Graph of a Rational Function. Polynomial and Rational Inequalities.	5
4/04/11	Composite Functions. One-to-One Functions; Inverse Functions. Exponential Functions. Exponential Equations.	6
4/11/11	Logarithmic Functions. Properties of Logarithms. Logarithmic Equations.	6
4/18/11	Compound Interest. Exponential Growth and Decay Models; Newton's Law; Logistic Growth and Decay Models. Building Exponential, Logarithmic, and Logistic Functions from Data.	6
4/25/11	Systems of Linear Equations: Substitution and Elimination. Systems of Nonlinear Equations. Systems of Inequalities.	8
5/02/11	Sequences. Arithmetic Sequences. Geometric Sequences; Geometric Series. Review	9
5/09/11	<b>COMPREHENSIVE FINAL EXAM</b>	1- 7, 8, 9