

Elementary and Intermediate Algebra, Spring 2018, 33097 Mat K095, F 5:00pm – 7:45pm, Room E204

Instructor – AnneFay Sullivan

Text: Elementary and Intermediate Algebra – 5th Edition -- Baratto - Bergman

Course description: 3 CREDIT HOURS

This developmental course prepares students for college level courses. The course develops understanding of number systems, different representations of numbers, operations on numbers, including numbers expressed in scientific notation. The course introduces functions, their graphs, modeling relationships between quantities using functions. Topics also include solving equations and expressions with integer exponents, radicals, solving, analyzing and modeling linear equations, systems of linear equations, Pythagorean Theorem and geometrical formulas are used to solve real world problems.

Measurements: Class Participation/Homework – 20 % , Each test – 15%, and final exam - 20%.
Grade equivalents: A 93 – 100, A- 90 – 93, B+ 87 -89, B 83 – 86,
B- 80 – 82, C+ 77 – 79, C 73 – 76, C- 70 – 72, D+ 67 – 69. D 63 – 66,
D- 60 – 62, F below 60, N if the student completed less than 60% of work

Attendance: It is very important that you attend **ALL** classes. Your attendance in the classroom, participation in classroom work /projects and preparation for each class is required and is essential to your success in the course.

Support Services: Tutorial services. Meeting with me for an extra help.

Office Hours: By arrangement.
E-mail: asullivan@trcc.commnet.edu

Class Cancellation: In case of inclement weather, check the college website for class cancellations or call 860-215- 9000 for recorded message on the college phone.

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.

Alert System: MyCommNet Alert is a system that sends text messages and emails to anyone signed up in the event of a campus emergency. Additionally, TRCC sends messages when the college is delayed or closed due to weather. All students are encouraged to sign up for MyCommNet Alert. A tutorial is available on the Educational Technology and Distance Learning Students page of the web site(see the link below).

http://www.trcc.commnet.edu/div_it/educationaltechnology/Tutorials/myCommNetAlert/MIR3.html

Disabilities :

If you have a disability that may affect your progress in this course, please meet with a Disability Service Provider (DSP) as soon as possible. Please note that accommodations cannot be provided until you provide written authorization from a DSP.

TRCC Disabilities Service Providers Counseling & Advising Office Room A-119	
Matt Liscum (860) 215-9265	<ul style="list-style-type: none"> • Physical Disabilities • Sensory Disabilities • Medical Disabilities • Mental Health Disabilities
Chris Scarborough (860) 215-9289	<ul style="list-style-type: none"> • Learning Disabilities • ADD/ADHD • Autism Spectrum

Digication Statement: All students are required to maintain an online learning portfolio in Digication that uses the college template. Through this electronic tool students will have the opportunity to monitor their own growth in college-wide learning. The student will keep his/her learning portfolio and may continue to use the Digication account after graduation. A Three Rivers General Education Assessment Team will select and review random works to improve the college experience for all. Student work reviewed for assessment purposes will not include names and all student work will remain private and anonymous for college improvement purposes. Students will have the ability to integrate learning from the classroom, college, and life in general, which will provide additional learning opportunities. If desired, students will have the option to create multiple portfolios

Course Content:

You will be responsible for the following sections of the text:

Chapter 0. Prealgebra Review

- 0.1 A Review of Fractions
- 0.2 Real Numbers
- 0.3 Adding and Subtracting
- 0.4 Multiplying and Dividing
- 0.5 Exponents and the Order of Operations

Chapter 1. From Arithmetic to Algebra

- 1.1 Transition to Algebra
- 1.2 Evaluating Algebraic Expressions
- 1.3 Simplifying Algebraic Expressions
- 1.4 Solving Equations with the Addition Property
- 1.5 Solving Equations with the Multiplication Property
- 1.6 Combining the Rules to Solve Equations
- 1.7 Linear Inequalities

Chapter 2. Functions and Graphs

- 2.1 Formulas and Problem Solving
- 2.2 Sets and Set Notation
- 2.3 Two-Variable Equations
- 2.4 The Cartesian Coordinate System
- 2.5 Relations and Functions
- 2.6 Tables and Graphs

Chapter 3. Graphing Linear Functions

- 3.1 Graphing Linear Functions
- 3.2 The Slope of a Line
- 3.3 Linear Equations

Chapter 4. Systems of Linear Equations

- 4.1 Graphing Systems of Linear Equations
- 4.3 Systems of Equations in Two Variables

Chapter 5. Exponents and Polynomials

- 5.1 Positive Integer Exponents
- 5.2 Integer Exponents and Scientific Notation
- 5.3 An Introduction to Polynomials
- 5.4 Adding and Subtracting Polynomials
- 5.5 Multiplying Polynomials
- 5.6 Dividing Polynomials (Objective 1 only)

Chapter 7. Radicals and Exponents

- 7.1 Roots and Radicals (Objectives 1, 2, 4)

Course Objectives and Outcomes.

At the completion of MAT*095, the student will be able to do the following —

1. Rational Numbers – At the end of this course, a student should be able to

- a) Identify and distinguish between rational and irrational numbers
- b) Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2 , $\sqrt{8}$)

2. Expressions and Equations with Polynomials, Rational and Radical Expressions, and Integer Exponents – At the end of this course, a student should be able to

- a) Interpret parts of an expression, such as terms, factors, and coefficients and evaluate expressions for a given replacement value(s)
- b) Add, subtract, and multiply polynomials. Divide polynomials by a monomial
- c) Construct and interpret equations as two expressions set equal to each other
- d) Manipulate formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's Law $V = IR$ to highlight resistance R
- e) Know and apply the properties of integer exponents to generate equivalent numerical expressions.

For example, $3^2 \times 3^{-5} = 3^{-3} = \frac{1}{3^3} = \frac{1}{27}$

- f) Use square root symbols to represent solutions to equations of the form $x^2 = p$, where p is a positive rational number
- g) Evaluate square roots of perfect squares
- h) Know that numbers such as $\sqrt{2}$ are irrational
- i) Express very large or very small quantities in scientific notation
- j) Perform operations with numbers expressed in scientific notation

3. Linear Equations in One Variable – At the end of this course, a student should be able to

- a) Solve linear equations and inequalities in one variable
- b) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms
- c) Create linear equations and inequalities in one variable and use them to solve real world applications
- d) Recognize examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions

4. Linear Equations in Two Variables – At the end of this course, a student should be able to

- a) Interpret the rate and unit rate as the slope of the graph
- b) Derive the equation $y = mx + b$ for a line intercepting the vertical axis at b and having a slope of m
- c) Identify parallel and perpendicular lines based on their slopes
- d) Graph a linear equation in two variables
- e) Construct a linear equation to model a linear relationship between two quantities. Determine and interpret the rate of change and initial value from a description of a relationship or from two (x, y) values, including reading these from a table or graph

- f) Construct linear equations given a graph, a description of a relationship, or two input-output pairs (include reading these from a table) using point-slope form and slope-intercept form

5. Systems of Linear Equations – At the end of this course, a student should be able to

- a) Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs
- b) Solve systems of two linear equations in two variables algebraically (using both substitution and addition methods), graphically (by hand and/or technology), Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6*
- c) Recognize systems of linear equations with one solution, infinitely many solutions, or no solutions
- d) Solve real-world problems leading to two linear equations in two variables

6. Functions – At the end of this course, a student should be able to

- a) Understand that a function is a rule that assigns to each input exactly one output and that the graph of a function is the set of ordered pairs consisting of an input and the corresponding output
- b) Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line
- c) Use functions to model linear relationships between quantities
- d) Use function notation. Evaluate functions for inputs in their domains
- e) Graph linear functions and show intercepts
- f) Recognize that linear functions have a constant rate of change and interpret the rate of change in the context of the problem

7. Applications – At the end of this course, a student should be able to

- a) Apply geometric formulas for two and three-dimensional figures such as rectangles, circles, rectangular solids, cylinders, spheres, etc.
- b) Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two dimensions

Disabilities Statement:

Students with disabilities are guaranteed reasonable accommodation under the provisions of the Americans with Disabilities Act of 1992. Disclosure of a disability must be voluntary. Valid and reliable documentation to verify eligibility for accommodation is required and must be submitted to the Student Development Offices of Student Services. If you have accommodations documented through the Student Services office, please see me as soon as possible so arrangements can be made. If you would like more information or want to schedule a confidential meeting, please contact the Counseling Center, at 860-215-9017.

College Withdrawal Policy:

You may withdraw from this class any time up to and including December 11 and you will receive a W grade on your transcript. However, you must complete a withdrawal form in the Registrar's Office at the time of withdrawal; *if you merely stop attending classes you will be assigned a grade of F or UF* depending on the date you stop attending.

Academic Integrity:

Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor. A full copy of the college's academic integrity policy is in the school's catalog and in the student handbook.

Title IX:

UNITED STATES DEPARTMENT OF EDUCATION AND OFFICE OF CIVIL RIGHTS TITLE IX STATEMENT OF POLICY: "Title IX of the Education Amendments of 1972 (Title IX) prohibits discrimination based on sex in education programs and activities in federally funded schools at all levels. If any part of a school district or college receives any Federal funds for any purpose, all of the operations of the district or college are covered by Title IX. Title IX protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination, including discrimination based on gender identity or failure to conform to stereotypical notions of masculinity or femininity. All students (as well as other persons) at recipient institutions are protected by Title IX-regardless of their sex; sexual orientation, gender identity, part-or full-time status, disability, race, or national origin-in all aspects of a recipient's educational programs and activities."

If any student experiences sexual misconduct or harassment, and/ or racial or ethnic discrimination on Three Rivers Community College Campus, or fears for their safety from a threat while on campus, please contact Edward A. Derr (860-215-9255; Derr@trcc.commnet.edu), the Diversity Officer and Title IX Coordinator: