Syllabus

Three Rivers Community College
MAT 172 – College Algebra
Spring 2015

Instructor:

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Open Hours: To be announced
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Course Description:

This course is intended to make students more proficient with algebra skills in order to prepare them for Calculus. Topics covered in the course include: functions, graphs, quadratic functions, polynomial functions, rational functions, exponential functions, systems and matrices, and conic sections.

Prerequisites:

Prerequisite: Acceptable placement or a "C" grade or better in MAT* K137(S). If you plan to take MAT 186, you need a grade of "C" or better in this course.

Required Materials:

- The text is College Algebra, 4th Ed., Beecher. You can purchase a hardcover book with MyMathLab or just the electronic access kit.
- Access Kit for MyMathLab software
- Notebook or binder
- TI 83 or 84 graphing calculator

Attendance:

Attendance in classes is strongly recommended. *I will teach a class only once.* You are responsible for getting the class notes, homework, and any other assignments from another student. You are responsible for completing that work by the next class after any missed class. Also, short unannounced quizzes may be given and they cannot be made up.

Attendance at exams is mandatory. You will be informed of the dates of tests at least one week in advance. Make-up exams may be given *with my prior consent*. If you must miss an exam, please speak with me before the date of the exam so that arrangements can be made.

Homework:

Most homework will be completed using My Math Lab. Homework will be assigned each class. I will be checking regularly to make sure you are keeping up with the homework. It is in your best interest to do at least the assigned problems, if not more. The more you do any math, the easier it becomes.

Grading Policy:

Throughout the semester there will be three 100-point exams and a final exam (100 points). Another possible 200 points will distributed among homework, projects, quizzes, other assignments, and class participation. The final grade will be determined by adding the total points earned and dividing by 6. Letter grade equivalents are listed below:

Grade	Percent of Points Earned
A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D	60-69
F	Below 60

The prerequisite for moving on to MAT 186 (Precalculus) is a C or better in this course.

Extra Credit:

There will be no extra credit assignments.

Contact:

All communication will occur by email or announcements in MyMathLab. Please make sure that your email addresses in MyMathLab and MyCommNet are accurate. Check your email regularly to be informed of any changes in schedule.

College Withdrawal Policy:

You may withdraw from this class any time up to and including May 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 N or F*. Any eligibility for refund of tuition is based on the date that the registrar receives the withdrawal.

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 Learning Specialist, Chris Scarborough, at 860-892-5751.

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.

Resources:

1. Visit me during open hours if you have any questions.
2. Send me email if you have any questions.
3. Use the email instructor button in MyMathLab to ask specific homework questions.
4. One of your greatest resources is each other. I encourage you to get to know your classmates and **exchange contact information**.

Class Conduct:

In addition to the rules and policies previously stated in this syllabus, students are asked to:

- Be respectful of each person,
- Do not use cell phones, beepers, or similar devices during class. Please silence these devices.
- From the TRCC Student Handbook: "*The College has the right and responsibility to take appropriate action when a student's conduct directly and significantly interferes with the College's educational mission and the rights of others to pursue their educational objectives in an environment conducive to learning.*"
  Such action will, at minimum, be the dismissal of the student from the remainder of class that day.

Cell Phone Use:

Please turn off the ringer on all cell phones/pagers before the start of each class. If you have a situation where you absolutely must be able to take a call, please notify me before class. Texting during class will negatively affect your grade.

Class Cancellation:

If class is cancelled by the school, pay attention to radio and TV announcements, call the college's main phone number 860-886-0177, or visit the college's home web page www.trcc.commnet.edu.

If class is cancelled by the instructor, a notice will be placed on the classroom door. If time permits, students may be notified by a message via email.

COURSE OUTCOMES:

1. Define absolute value; find distances on the number line and on the coordinate plane.
2. Simplify expressions with rational exponents, write them in radical form, simplify, combine, rationalize radical expressions.
3. Solve linear and quadratic inequalities, absolute value equations and inequalities; express answers in interval form.
4. Perform operations on complex numbers, conjugates; represent complex numbers graphically.
5. Perform operations on radical expressions, rational exponents; solve radical equations.
6. Find the domain and range of functions, combine functions, identify odd and even functions, graph piece-wise defined functions, find compositions of functions, inverses, and transformations of functions.
7. Find the characteristics of polynomial functions, solve polynomial equations, find zeroes (roots) and x-intercepts of polynomials, apply the Fundamental theorem of Algebra, The Remainder and Factor Theorems, analyze end behavior.
8. Graph rational functions, find vertical, horizontal, slant asymptotes.
9. Graph exponential and logarithmic functions, use properties of exponentials and logarithms, solve exponential and logarithmic equations.
10. Solve systems of linear equations in several variables, use matrices, determinants.
11. Find all characteristics of conic sections, write the equations of circles, parabolas, ellipses, hyperbolas in standard form, and graph them.
12. Solve nonlinear systems of equations.
13. Apply right triangle trigonometry.

Course Outline:

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

Chapter 1. Graphs, Functions, and Models

1.1 Introduction to Graphing
1.2 Functions and Graphs
1.3 Linear Functions, Slope, and Applications
1.4 Equations of Lines and Modeling
1.5 Linear Equations, Functions, Zeros, and Applications
1.6 Solving Linear Inequalities

Chapter 2. More on Functions

2.1 Increasing, Decreasing, and Piecewise Applications
2.2 The Algebra of Functions
2.3 The Composition of Functions
2.4 Symmetry and Transformations
2.5 Variation and Applications

Chapter 3. Quadratic Functions, Equations, and Inequalities

- 3.1 The Complex Numbers
- 3.2 Quadratic Equations, Functions, Zeros, and Models
- 3.3 Analyzing Graphs of Quadratic Functions
- 3.4 Solving Rational Equations and Radical Equations
- 3.5 Solving Equations and Inequalities with Absolute Value

Chapter 4. Polynomial Functions and Rational Functions

- 4.1 Polynomial Functions and Models
- 4.2 Graphing Polynomial Functions
- 4.3 Polynomial Division; Remainder Theorem; Factor Theorem
- 4.4 Theorems about Zeroes of Polynomial Functions
- 4.5 Rational Functions
- 4.6 Polynomial Inequalities and Rational Inequalities

Chapter 5. Exponential Functions and Logarithmic Functions

- 5.1 Inverse Functions
- 5.2 Exponential Functions and Graphs
- 5.3 Logarithmic Functions and Graphs
- 5.4 Properties of Logarithmic Functions
- 5.5 Solving Exponential Equations and Logarithmic Equations
- 5.6 Applications and Models

Chapter 6. Systems of Equations and Matrices

- 6.1 Systems of Equations in Two Variables
- 6.2 Systems of Equations in Three Variables
- 6.3 Matrices and Systems of Equations
- 6.4 Matrix Operations
- 6.5 Inverses of Matrices
- 6.6 Determinants and Cramer's Rule
- 6.8 Partial Fractions

Chapter 7. Conic Sections

- 7.1 The Parabola
- 7.2 The Circle and the Ellipse
- 7.3 The Hyperbola
- 7.4 Nonlinear Systems of Equations and Inequalities