Syllabus

Three Rivers Community College
MAT 172 – College Algebra
Spring 2015
Course Registration Number (CRN) – 12866 Sec. T4
Thursday 5:30-8:15 pm, Main Campus, Rm. D-211
For a copy of this syllabus, homework assignments, class announcements, etc, log onto Blackboard/Learn from the MyCommNet link on TRCC's homepage

Instructor:
Matthew L. Burbine
Office: TASC (Tutoring Center), located in C-117, next to the Library
Office Hours: TBA. I will be in the TASC M-F 11am-6pm but I will dedicate some time solely to this class.
email: mburbine@trcc.commnet.edu
Office Phone: 860 215-9219
Home Phone: 860 599-5463

Course Description:
This course is a thorough and rigorous algebra course, which strengthens the proficiency with algebraic skills and the conceptual understanding needed to be successful in the Calculus sequence. The topics include: sets, polynomial, exponential, logarithmic and rational functions, rational exponents, conic sections, right triangle trigonometry, matrices, polynomial, exponential, logarithmic and radical equations, linear and quadratic inequalities, absolute value equations and inequalities, linear and nonlinear systems.

Course Outcomes:
The expected outcome for this course is that students who successfully complete it will be able to:

1. Define Absolute Value, Find Distances on the Number Line, 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 Theorem, Analyze End Behavior
8. Graph Rational Functions, Find Vertical, Horizontal, Slant Asymptotes
9. Graph Exponential and Logarithmic Function, 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 System of Equations.

Prerequisites:
You must have successfully completed MAT 137 or MAT 137S with a grade of C or better, or have an acceptable placement score.

Required Materials:
The required text is College Algebra, 4th Ed.; Beecher, Penna, Bittinger.; Boston, MA; Addison-Wesley; 2012. ISBN: 9780321693990

You will also need to have a graphing calculato. I strongly urge you to get (buy, borrow, or whatever) a Texas Instruments TI 83+ or 84+ calculator, as this model is by far the best-suited one for this class and it is the one I will be using. You are free, however, to use any model or brand you like, but you will responsible for learning its use on your own.

Cell Phone Use:
Please turn off the ringer on all cell phones 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.

Attendance:
Attendance in classes is strongly recommended. Since this class meets only once per week, if you miss one class it is like missing two (or three) regular classes and you will be at a disadvantage. If you miss two classes, you have missed too much material and you may be at severe risk of failing the class. *I will teach a class only once;* you are responsible for getting the class notes, homework, and any other assignments from another student and completing that work by the next week 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. Remember, *before the exam it's a reason, after the exam it's an excuse*.

Grading Policy:
Throughout the semester there will be four 100-point exams. Another possible 100 points will distributed among various assignments and projects, quizzes, and class participation. 5 points will be deducted for each class that an assignment or project is late. The final grade will be determined by adding the total points earned and dividing by five. Letter grade equivalents are listed below:

Grade	Grade Points	Quality Points
A	93-100	4.0
A-	90-92	3.7
B+	87-89	3.3
B	83-86	3.0
B-	80-82	2.7
C+	77-79	2.3
C	73-76	2.0
C-	70-72	1.7
D+	67-69	1.3
D	63-66	1.0
D-	60-62	0.7
F	Below 60	0.0

Homework:
Homework will be assigned each week. *Unless specified otherwise*, I will not collect homework. However, I may give an unannounced quiz at the beginning of class that is taken directly from the homework. It is in your best interest, then, to do <u>at least</u> the assigned problems, if not more. The more you do any math, the easier it becomes. I will try to answer any homework problems at the beginning of each class, but we may have to curtail this to fit our time limits.

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 <u>must</u> complete a withdrawal form in the Registrar's Office at the time of withdrawal. Any eligibility for refund of tuition is based on the date that the registrar receives the withdrawal form. *If you merely stop attending classes and you have completed what I deem to be 60% of the coursework, you will be assigned whatever grade you have earned to date, with any uncompleted work counting as <u>zero</u>*. If you have not completed 60% of the coursework, I will assign a grade of N (no basis for grade).

Disabilities Statement:
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	• Physical Disabilities • Sensory Disabilities • Medical Disabilities • Mental Health Disabilities
Chris Scarborough (860) 215-9289	• Learning Disabilities • ADD/ADHD • Autism Spectrum

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:
The Tutoring and Academic Success Center (TASC) is located in Rm. C-117, next to the Library. TASC provides free **one-to-one or group tutoring** in math as well as in many other subject areas.

In addition to my regular hours in the Tutoring Center, I will make myself exclusively available to students in this class for about two hours per week (we will decide the time slot(s) during the first class). Feel free to contact me any time, though, that you have a question.

Finally, one of your greatest resources is each other. I encourage you to get to know your classmates and **exchange contact information**.

Digication:
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.

Class Cancellation:
In case of inclement weather, check for closure on the college's website or call 860.215.9000 for a recorded message. Chances are, that since I will be here at the college anyway, if the college is **not** closing or cancelling all classes, I **will not** cancel our class. However, in case of inclement weather where the college has **not** closed, check Blackboard/Learn for a cancellation notice for this class. In addition to posting a notice on Blackboard, I will send an email through Blackboard as well. **NOTE:** This email will go to your new TRCC student email account. You can set your student email account to automatically forward any incoming emails to any other account that you wish. You should become familiar with this student email account since all future non-emergency communications from the college will be sent this way.

Course Outline:

This outline and the homework problems are subject to change, both in content and in order:

Chapter 1, 1.1 - 1.6

Graphing 1.1	3, 11, 17, 29, 39, 41, 49, 55, 61, 75, 87
Functions and Graphs1.2	5, 7, 11, 15, 17, 21, 31, 35, 43, 47, 55, 57, 61, 71, 77, 83
Linear Functions, Slope and Applications1.3	7, 15, 17, 23, 33, 47, 49, 51, 57, 61, 73, 75
Equations of Lines and Modeling1.4	1, 3, 5, 7, 13, 15, 17, 19, 25, 35, 39, 43, 47, 61
Linear Equations, Functions1.5	3, 11, 15, 27, 33, 35, 47, 57, 53, 63, 73
Solving Linear Inequalities1.6	1, 3, 15, 17, 29, 31, 39, 45

Chapter 2, 2.1 - 2.5

Functions 2.1	5, 15, 23, 25, 31, 35, 39, 43, 47
The Algebra of Functions 2.2	1, 5, 7, 15, 21, 29, 33, 47, 53, 57
The Composition of Functions 2.3	1, 15, 19, 23, 27, 33, 39, 41, 45
Symmetry and Transformations 2.4	1, 3, 5, 19, 33, 37, 39, 41, 49, 55, 79, 107, 109, 111
Variation and Applications 2.5	1, 3, 15, 17, 27, 29, 33, 35, 39

Chapter 3, 3.1 - 3.5

The Complex Numbers 3.1	1, 7, 9, 11, 21, 31, 39, 43, 49, 59, 69, 71, 77, 79, 83, 87
Quadratic EQs, Models 3.2	3, 7, 13, 19, 23, 31, 35, 41, 47, 57, 69, 79, 87, 99, 101
Graphs of Quadratic EQs 3.3	3, 9, 13, 17, 19, 23, 25, 27, 31, 39, 41, 45
Rational and Radical EQs 3.4	1, 9, 17, 19, 23, 29, 37, 53, 63, 69, 85
Solving EQs & Inequalities w/Absol. Val.s 3.5	1, 7, 15, 21, 27, 33, 45, 47, 59

Chapter 4, 4.1 - 4.6

Polynomials Functions and Models 4.1	1, 3, 7, 11, 15, 19, 21, 23, 33, 37, 39, 41, 49, 55
Graphing Polynomials Functions 4.2	1, 9, 13, 17, 19, 25, 29, 33, 39, 43, 45
Polynomial Division, Remainder Theorem 4.3	3, 7, 11, 19, 23, 25, 31, 35, 41, 45, 51
Zeros of Polynomials Functions 4.4	3, 7, 13, 17, 23, 33, 39, 47, 51, 55, 61, 69, 81, 93, 95
Rational Functions 4.5	1, 3, 5, 15, 19, 21, 23, 27, 37, 41, 49, 59, 65, 67, 77, 83
Polynomial and Rational Inequalities 4.6	1, 3, 5, 27, 29, 39, 57, 61, 67, 79

Chapter 5, 5.1 - 5.6

Inverse Functions 5.1	1, 9, 13, 17, 21, 25, 27, 39, 43, 47, 49, 69, 77, 79
Exponential Functions and Graphs 5.2	1, 3, 7, 9, 11, 15, 23, 27, 33, 41, 47, 51, 53, 69
Logarithmic Functions and Graphs 5.3	1, 5, 7, 9, 37, 45, 57, 61, 65, 67, 69, 75, 79, 89, 95
Properties of Logarithmic Functions 5.4	1, 13, 15, 17, 25, 31, 35, 37, 41, 45, 53, 55, 65, 69, 71, 73
Solving Exponential and Logarithmic EQs 5.5	1, 7, 11, 19, 21, 31, 33, 41, 43, 47, 45, 57, 69, 73
Applications and Models 5.6	1, 3, 7, 9, 13, 17, 19

Chapter 6, 6.1 - 6.6, 6.8

Systems of Equations in 2 Variables 6.1	1, 3, 5, 7, 17, 23, 31, 33, 35, 37, 57, 61, 65, 69, 81
Systems of Equations in 3 Variables 6.2	1, 7, 9, 17, 23, 25, 29, 33, 45
Matrices and Systems of Equations 6.3	1, 3, 5, 7, 9, 13, 15, 23, 27, 33, 43
Matrix Equations 6.4	9, 15, 17, 23, 25, 39, 43
Inverses of Matrices 6.5	1, 5, 11, 19, 25, 29, 33
Determinants and Cramer's Rule 6.6	1, 3, 5, 9, 11, 13, 17, 23, 29, 37, 41
Partial Fraction Decomposition 6.8	3, 5, 7, 13, 15, 17, 23

Chapter 7, 7.1 - 7.4

Parabola 7.1	1, 3, 5, 7, 15, 17, 23, 29
The Circle and the Ellipse 7.2	1, 3, 5, 7, 15, 19, 21, 25, 31, 43, 45, 51
The Hyperbola 7.3	1, 5, 7, 11, 17, 21, 29
Nonlinear Systems of EQs and Inequalities 7.4	1, 5, 7, 17, 19, 27, 33, 59, 61, 65