

**Syllabus**  
**Three Rivers Community College**  
**MAT 105 – Intermediate Algebra**  
**Spring 2014**

**Instructor:**

Christopher Lee Williams!  
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Open Hours: By  
appointment

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**Course Description:**

This course extends the basic algebra skills acquired in MAT K095. The topics include: Linear Functions, Quadratic Functions and/or Expressions, Exponential Functions and/or Expressions, Rational Functions and/or Expressions and Radical Functions and/or Expressions and relative use of a utility calculator (TI-83/84).

**Prerequisites:**

Prerequisite: Acceptable placement score or a "C" grade or better in MAT K075 or completion of the first four modules in MAT 090. If you plan to take MAT 137, you need a grade of "B-" or better in this course. If you plan to take MAT 137S, you need a grade of "C" or better in this course.

**Required Materials:**

- ♦ The text is Elementary and Intermediate Algebra, Graphs and Models, 4th Ed., Bittinger, Ellenbogen, & Johnson, Pearson Addison Wesley, 2012. You can purchase a hardcover book with MyMathLab or just the electronic access kit.
- ♦ Access Kit for MyMathLab software
- ♦ Notebook or binder

**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:**

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 be 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 (Pre-Calculus) is a C or better in this course.

**Extra Credit:**

There will be no extra credit assignments, although I always include bonus questions on tests and quizzes.

**Contact:**

All communication will occur by email. Please make sure that your email addresses 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 12 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*. Any eligibility for refund of tuition is based on the date that the registrar receives the withdrawal.

**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.

<b>TRCC Disabilities Service Providers</b> Counseling & Advising Office Room A-119	
<b>Matt Liscum</b> (860) 383-5240	<ul style="list-style-type: none"> <li>• Physical Disabilities</li> <li>• Sensory Disabilities</li> <li>• Medical Disabilities</li> <li>• Mental Health Disabilities</li> </ul>
<b>Chris Scarborough</b> (860) 892-5751	<ul style="list-style-type: none"> <li>• Learning Disabilities</li> <li>• ADD/ADHD</li> <li>• Autism Spectrum</li> </ul>

### 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. If you have any questions and/or need extra help, set up an appointment with me.
2. Send me email if you have any questions.
3. One of your greatest resources is each other. I encourage you to get to know your classmates and **exchange contact information**.
4. TASC (the combined Tutoring Center and Writing Center) is located in room. C-117. TASC provides free **one-to-one or group tutoring** in math as well as in many other subject areas. TASC also has **textbooks** (both old and current), **videotapes**, and many **handouts** available for student use.

### 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](http://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:**

#### Linear Functions

1. Provide multiple representations (e.g., words, symbols, graphs, tables) of linear functions by hand and/or using technology
2. Determine identifying characteristics of linear functions
3. Model and solve real world applications with linear functions (e.g., car depreciation) and systems of linear equations

#### Quadratic Functions and/or Expressions

1. Provide multiple representations of quadratic functions or expressions by hand/or using technology
2. Determine identifying characteristics of quadratic functions or expressions (e.g., factors)
3. Evaluate, simplify, and perform operations on quadratic functions or expressions
4. Solve quadratic equations algebraically (e.g., factoring, completing the square, and quadratic formula with rational solutions) and/or graphically
5. Solve real world applications involving quadratic equations and functions

#### Exponential Functions and/or Expressions

1. Provide multiple representations (e.g., tables, graphs, symbols) of exponential functions or expressions by hand and/or using technology
2. Determine identifying characteristics of exponential functions or expressions
3. Evaluate, simplify, and perform operations on exponential functions or expressions
4. Identify real world applications involving exponential functions and/or solve graphically

#### Rational Functions and/or Expressions

1. Provide multiple representations of simple rational functions or expressions by hand and/or using technology
2. Determine identifying characteristics of rational functions or expressions
3. Evaluate, simplify, and perform operations on simple rational functions or expressions
4. Solve simple rational equations algebraically and/or graphically
5. Solve real world applications involving rational functions

### Radical Functions and/or Expressions

1. Provide multiple representations of simple radical functions or expressions by hand and/or using technology with primary emphasis on square root
2. Determine identifying characteristics of radical functions or expressions
3. Evaluate, simplify, and perform operations on simple radical functions or expressions
4. Solve simple radical equations algebraically and/or graphically
5. Solve real world applications involving radical functions
6. Identify imaginary numbers

### Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

## **Course Outline:**

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

### **Chapter 1. Introduction to Algebraic Expressions**

- 1.1 Introduction to Algebra
- 1.2 The Commutative, Associative, and Distributive Laws
- 1.3 Fraction Notation
- 1.4 Positive and Negative Real Numbers
- 1.5 Addition of Real Numbers
- 1.6 Subtraction of Real Numbers
- 1.7 Multiplication and Division of Real Numbers
- 1.8 Exponential Notation and Order of Operations

### **Chapter 2. Equations, Inequalities, and Problem Solving**

- 2.1 Solving Equations
- 2.2 Using the Principles Together
- 2.3 Formulas
- 2.4 Applications with Percents
- 2.5 Problem Solving
- 2.6 Solving Inequalities
- 2.7 Solving Applications with Inequalities

## **TEST 1**

### **Chapter 3. Introduction to Graphing and Functions**

- 3.1 Reading Graphs, Plotting Points, and Scaling Graphs
- 3.2 Graphing Equations
- 3.3 Linear Equations and Intercepts
- 3.4 Rates
- 3.5 Slope
- 3.6 Slope-Intercept Form
- 3.7 Point-Slope Form
- 3.8 Functions

### **Chapter 4. Systems of Equations in Two Variables**

- 4.1 Systems of Equations and Graphing
- 4.2 Systems of Equations and Substitution
- 4.3 Systems of Equations and Elimination
- 4.4 More Applications Using Systems

## **TEST 2** (Sections 3.1 – 3.6, 4.1, 4.2)

## **QUIZ** (Sections 3.7, 3.8, 4.3, 4.4)

### **Chapter 5. Polynomials**

- 5.1 Exponents and Their Properties
- 5.2 Negative Exponents and Scientific Notation
- 5.3 Polynomials and Polynomial Functions

- 5.4 Addition and Subtraction of Polynomials
- 5.5 Multiplication of Polynomials
- 5.6 Special Products
- 5.7 Polynomials in Several Variables
- 5.8 Division of Polynomials
- 5.9 The Algebra of Functions

## **Chapter 6. Polynomial Factorizations and Equations**

- 6.1 Introduction to Polynomial Factorizations and Equations
- 6.2 Trinomials of the Type  $x^2 + bx + c$
- 6.3 Trinomials of the Type  $ax^2 + bx + c$
- 6.4 Perfect Square Trinomials and Difference of Squares

## **TEST 3**

## **FINAL EXAM**