Math 137 Syllabus for Spring 2012
Three Rivers Community College

Course: Intermediate Algebra MAT* K137 T12 **CRN:** 11311

Prerequisites: Math 095 with a grade of C or better OR Acceptable Placement Score

Instructor: John Wengertsman
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Office Hours: Monday and Wednesday 9:45 to 10:45, Tuesday and Thursday 2:30 to 3:30

Text: Intermediate Algebra Functions & Authentic Applications 4th Edition
by Jay Lehmann

Meeting Times: Tuesday and Thursday from 9:30 - 10:45am
Room #: E227

Course Description: This course continues the development of algebraic skills and concepts. It also touches lightly on right triangle trigonometry. The topics include linear equations, right triangle trigonometry applications, functions and graphs, applications of systems of equations, inequalities, rational expressions and equations, operations on radicals and radical equations, rational exponents, quadratic equations, exponential and logarithmic functions.

Course Objectives: The objective of this course is to enable the student to understand and to work with, interrelate, and apply algebra governing: solutions of linear equations and inequalities, functions, solutions of systems of equations, rational expressions and equations, radical expressions and equations, solutions of quadratic equations, exponential and logarithmic functions. The student will also develop a basic understanding of Right Triangle Trigonometry. See attached page for a finer breakdown.

Attendance: For the learning process to be effective, you are expected to attend each class regularly, to arrive on time, and to take exams on their assigned dates. If you miss a class, you are still responsible for the material covered, homework assigned, and any announcements. If you will be missing a class for an appropriate reason, please call or email me as soon as possible.

Withdrawal Policy: Students may withdraw, in writing at the Registrar's Office, for any reason up through Monday, May 7. No withdrawals will be accepted after Monday, May 7.

Homework: I expect all homework assignments to be completed and kept in an organized notebook or folder. Homework is assigned at each class meeting.

Course Evaluation: There will be three tests (worth 23% each) and a cumulative final exam (worth 31%). You must come to class to take these tests. **In general, make-up of a missed test is not allowed.** Exceptions to this rule may be made for extraordinary circumstances (grade may be adjusted). Tests will be announced a week in advance.

A 94-100; 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

Support Services: TASC is the college's free tutoring and academic success center. Sign up a tutor or drop in as needed to the Thames Tutoring Center (860 885-2311) located in room C-117. Peers and peer study groups are also good resources. Meeting with me is another option available.

Use of Calculators: This course requires the use of a TI83 Plus or TI84 Plus graphing calculator.

Academic Integrity Policy: 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. Please see the Three Rivers Community College catalog for the college's Academic Integrity Policy.

Disabilities Statement: Students with disabilities, who require special accommodations and support services, are encouraged to notify Chris Scarborough (860 892-5751)

Cellular Phones and Beepers: Cellular phones and beepers must be turned off during class. Phones are not to be answered during class. Please see me if extenuating circumstances should arise.

Cancellation:
1. Inclement Weather: To obtain information on delays, changes, or class cancellations due to inclement weather or emergencies call 860 886-0177 or go to www.trcc.commnet.edu.
2. Instructor: If for some reason I cannot make it to class or I will be late, then I will email everyone using the email addresses that you provided to the college and are on my electronic Class Roster. I will email all of you to make sure that I do have your CORRECT email address. If you do NOT receive an email from me, then you need to go to Student Services (in the A-1 Wing) and provide them with your correct current email address. If you change your email during the semester, then you need to go to Student Services and make the appropriate change.

MAT137 Course Outcomes

1. Factor an algebraic expression using a combination of greatest common factor, difference of two squares, sum or difference of two cubes, and/or trinomial factoring .
2. Use factoring procedures to solve equations and problems.
3. Solve compound linear inequalities of the form C<ax + b <d. Express answer algebraically, graphically, and using interval notation.
4. Isolate a particular variable in a literal equation.
5. Use quadratic formula to find exact values of a quadratic equation with irrational or imaginary solutions. Approximate the irrational solutions.
6. Solve basic exponential and logarithmic equations.
7. Evaluate basic logarithmic expressions, and convert between logarithmic and exponential form.
8. Solve an exponential equation that requires the use of logarithms.

9. Graph a quadratic function by finding the vertex, x- and y-intercepts.
10. Relate the discriminant in the quadratic formula to the graph of a parabola.
11. Graph a basic exponential or logarithmic function.
12. Know the graphical relationship between exponential and logarithmic functions.
13. Express the slope as a rate of change using appropriate units.
14. Write the equation of a linear function given data. Use functional notation in the answer.
15. Write the equation of an exponential function given data. Use functional notation in the answer.
16. Solve a 2 x 2 and 3 x 3 system of equations.
17. State the domain of linear, quadratic, exponential and logarithmic functions.

18. Evaluate functions using numerical and algebraic values.
19. Identify domain (inputs) and range (outputs) graphically for basic functions.
20. Interpret functional notation in a variety of application problems.
21. Determine if a relation is a function by looking at a graph, table, or equation.
22. Solve a rational equation and check for extraneous solutions.
23. Solve a radical equation that produces a second-degree equation. Check for extraneous solutions.
24. Know and apply the rules of integer and fractional exponents

25. Add, subtract, multiply, divide rational expressions. Reduce the answers.
26. Simplify a complex fraction.
27. Know the meaning of rational exponents and their relationship to radical form.
28. Simplify radical expressions with emphasis on cube roots and lower.
29. Rewrite radical expressions by rationalizing numerator or denominator.
30. Add, subtract, multiply, and divide radical expressions.
31. Solve application problems involving the Pythagorean Theorem.
32. Given a quadratic model, find and interpret the maximum or minimum values, and the intercepts.
33. Solve an application problem involving quadratic equations.
34. Solve an application problem that involves rational expressions.
35. Solve an application problem involving a given exponential or logarithmic model.
36. Solve applications involving linear systems.

37. Find the six trigonometric values of an acute angle
38. Solve triangles using right triangle trig, distinguish between the angle of depression and elevation.
39. Solve applied problems using right triangle trigonometry

Math 137 Course Content

1.6 Functions
2.1 Using Lines to Model Data
2.2 Finding Equations of Linear Models
2.3 Function Notation and Making Predictions
Right Triangle Trigonometry – Applications (Handout)
3.2 Using Substitution and Elimination to Solve Systems
3.3 Using Systems to Model Data
TEST 1

4.1 Properties of Exponents
4.2 Rational Exponents
4.3 Graphing Exponential Functions
4.4 Finding Equations of Exponential Functions
4.5 Using Exponential Functions to Model Data

5.2 Logarithmic Functions
5.3 Properties of Logarithms
5.4 Using the Power Property with Exponential Models to Make Predictions
5.5 More Properties of Logarithms
5.6 Natural Logarithms
TEST 2

6.1 Adding and Subtracting Polynomial Expressions and Functions
6.2 Multiplying Polynomial Expressions and Functions
6.3 Factoring Trinomials of the Form $x^2 + bx + c$: Factoring Out the GCF
6.4 Factoring Polynomials
6.5 Factoring Special Binomials
6.6 Using Factoring to Solve Polynomial Equations

7.1 Graphing Quadratic Functions in Vertex Form
7.2 Graphing Quadratic Functions in Standard Form
7.3 Using the Square Root Property to Solve Quadratic Equations
7.5 Using the Quadratic Formula to Solve Quadratic Equations
7.6 Solving Systems of Linear Equations in Three Variables
7.7 Finding Quadratic Models
TEST 3

8.1 Finding the Domains of Rational Functions and Simplifying Rational Expressions
8.2 Multiplying and Dividing Rational Expressions
8.3 Adding and Subtracting Rational Expressions
8.5 Solving Rational Equations
8.6 Modeling with Rational Functions

9.1 Simplifying Radical Expressions
9.2 Adding, Subtracting, and Multiplying Radical Expressions
9.5 Solving Radical Equations
FINAL EXAM – CUMULATIVE