SYLLABUS

Math 137 (Intermediate Algebra) Instructor: Cheryl Hanselman
Fall 2017 (#31073) Cell Phone: 860-917-6295 Text first & identify yourself
Thursdays 6:30-9:15 e-mail address: chanselman@trcc.commnet.edu

AVAILAB LE FOR EXTRA HELP

Thursdays 5:30-6:30 before class

COURSE DESCRIPTION

This course continues the development of algebraic skills and concepts. The topics include: linear equations, functions and graphs, applications of systems of equations, inequalities, rational expressions and equations, operations on radicals and rational exponents, quadratic equations, and exponential and logarithmic functions. A graphing calculator is required.

COLLEGE DIGICATION REQUIREMENT

All students are required to maintain an online learning portfolio in Digication that uses the college template.

PREREQUISITES

Acceptable placement score OR MATH 095 with a grade of C+ or higher OR its equivalent

TEXTBOOK

Elementary and Intermediate Algebra, 5th Ed. by Baratto Bergman
This book is used for both M095 AND M137
ALEKS is NOT required

OTHER MATERIALS NEEDED

Graphing Calculator – Math Department recommends TI-84
Graph paper

ASSIGNMENTS

Suggested problems will be given for each chapter. The student is expected to keep a homework notebook that will be checked during each test. There should be evidence that you did most of the assigned problems, that you corrected them with the answers in the back of the book, and notations where you had questions.

ATTENDANCE

The student is expected to attend all classes for the entire class. It is the experience of the instructor that there is a direct correlation between class attendance and a student's final grade.

*No cell phone calculators can be used

*No cell phone use during class – Please set on vibrate or turn off.

*Please use restrooms etc. BEFORE class or DURING BREAK.

*Please be respectful of your classmates and instructor. Talking while instruction is going on OR going off task during group work affects how others learn. Please be considerate.

EVALUATION/GRADING

*Chapter Tests (70%)

There will be four in-class exams. On each of these tests you will be able to use a graphing calculator. You will be required to show the steps that were shown in class for full credit. I will drop the lowest grade of your four test grades. The remaining three test grades count as 75% of your grade.

Students are expected to take the exams at the scheduled time. If an emergency arises and you miss an exam, you must contact me to make arrangements to take the test prior to the beginning of the next class. Failure to make contact with me to arrange a make-up time will result in a zero for that test.

*Final Exam (20%) This is a cumulative final created by the math department at Three Rivers.

*Homework Notebook (10%)

If you require special test-taking accommodations you must notify me at the beginning of the semester so we can make the necessary arrangements.

Final grades are figured as follows:

A 94-100%	B 80-82%	D+ 67-69%
A- 90-93%	C+ 77-79%	D 63-66%
B+ 87-89%	C 73-76%	D- 60-62%
B 83-86%	C- 70-72%	F Below 60%

College Withdrawal Policy

Students may withdraw, in writing at the Registrar's Office, for any reason until the 10th week of classes. From the 11th week through the end of the 13th week, a student may withdraw with the instructor's written approval.

Disabilities/ Learning Differences Statement

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact the Counseling and Advising Center at 383-5217. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. Please note that I cannot provide accommodations based upon disability until I have received an accommodation letter from the Disabilities Counselor. Your cooperation is appreciated.

Academic Integrity at Three Rivers

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 integrity of every degree awarded by the College. In this class and in this course of your academic career, present only your own best work and act at all times with honor and integrity.

Board of Regents for Higher Education and Connecticut State Colleges and Universities Policy Regarding Sexual Misconduct Reporting, Support Services and Processes Policy:

Public Act No. 14-11: An Act Concerning Sexual Assault, Stalking and Intimate Partner Violence on Campus:

"The Board of Regents for Higher Education (BOR) in conjunction with the Connecticut State Colleges and Universities (CSCU) is committed to insuring that each member of every BOR governed college and university community has the opportunity to participate fully in the process of education free from acts of sexual misconduct, intimate partner violence and stalking."

Title IX Statement of Policy:

"Title IX of the Education Amendments Act of 1972 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 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 educational programs and activities."

Please Report Student Incidents to: Edward A. Derr, Student Diversity and Title IX Coordinator
Admissions Welcome Center * Office A116
574 New London Turnpike, Norwich CT 06360
860.215.9255 * EDerr@trcc.commnet.edu

Tentative Course Schedule

8/31 Course preliminaries and brief review (5.5)
Factoring (6.1-6.4)

9/7 There will be NO CLASS TONIGHT due to an instructor schedule conflict

9/14 Factoring (6.5-6.6)
Practice Factoring Techniques

9/21 Review Ch.6
Roots, Simplifying Roots, and Applications (7.1-7.2)

9/28 **Exam (Chapter 6)**
Operations with Radical Expressions (7.3)

10/5 Radical Equations, Rational Exponents, Complex Numbers (7.4, 7.5, 7.6)

10/12 Review Chapter 7
Quadratic Functions (8.1)

10/19 **Exam (Chapter 7)**
Quadratic Functions (8.2)

10/26 Quadratic Equations and Parabolas (8.3-8.4)

11/2 Review Chapter 8
Rational Functions (9.1)

11/9 **Exam (Chapter 8)**
Rational Expressions (9.2-9.3)

11/16 Rational Equations (9.6)
Exponential Functions (10.4)

11/23 Thanksgiving – NO CLASS

11/30 Review Chapter 9 and 10.4

12/7 **Exam Chapter 9 (9.1-9.3, 9.6) and Chapter 10 (10.4)**
Review for Final Exam

12/14 **FINAL EXAM**

Course Objectives

Section 6.1 (7 topics)

Greatest common factor of 2 numbers
Introduction to the GCF of two monomials
Greatest common factor of two multivariate monomials
Factoring out a monomial from a polynomial: Univariate
Factoring out a monomial from a polynomial: Multivariate
Factoring a polynomial by grouping: Problem type 1
Factoring a polynomial by grouping: Problem type 2

Section 6.2 (3 topics)

Factoring a perfect square trinomial
Factoring a difference of squares
Factoring a sum or difference of two cubes

Section 6.3 (3 topics*)

Factoring a quadratic with leading coefficient 1
Factoring a perfect square trinomial
Factoring a quadratic with leading coefficient greater than 1

Section 6.4 (3 topics*)

Factoring a quadratic with leading coefficient 1
Factoring a quadratic in two variables with leading coefficient greater than 1
Factoring a product of a quadratic trinomial and a monomial

Section 6.5 (7 topics*)

Section 6.6 (6 topics)

Solving an equation written in factored form
Finding the roots of a quadratic equation with leading coefficient 1
Finding the roots of a quadratic equation with leading coefficient greater than 1
Solving a quadratic equation needing simplification
Writing a quadratic equation given the roots and the leading coefficient
Solving a word problem using a quadratic equation with rational roots

(*) Some topics in this section are also covered in a previous section of this Objective. Topics are only counted once towards the total number of topics for this Objective.

Section 7.1 (7 topics)

Square root of a perfect square
Square root of a rational perfect square
Cube root of an integer
Square root of a perfect square monomial
Pythagorean Theorem
Distance between two points in the plane
Graphing a circle given its equation in standard form

Section 7.2 (8 topics*)

Simplifying the square root of a whole number less than 100
Simplifying a radical expression with an even exponent
Simplifying a radical expression with two variables
Simplifying a higher root of a whole number
Simplifying a higher radical expression: Multivariate
Rationalizing the denominator of a radical expression
Rationalizing a denominator: Quotient involving higher radicals and monomials
Distance between two points in the plane

Section 7.3 (7 topics)

Square root addition or subtraction
Simplifying a sum or difference of radical expressions: Multivariate
Square root multiplication: Advanced
Simplifying a product of radical expressions: Multivariate
Simplifying a product involving square roots using the distributive property: Advanced
Special products of radical expressions: Conjugates and squaring
Rationalizing the denominator of a radical expression using conjugates

Section 7.4 (4 topics)

Solving a radical equation that simplifies to a linear equation: One radical, basic
Solving a radical equation that simplifies to a linear equation: Two radicals
Solving a radical equation that simplifies to a quadratic equation: One radical
Solving a radical equation that simplifies to a quadratic equation: Two radicals

Section 7.5 (5 topics)

Converting between radical form and exponent form
Rational exponents: Non-unit fraction exponent with a whole number base
Rational exponents: Negative exponents and fractional bases
Rational exponents: Products and quotients with negative exponents
Rational exponents: Powers of powers with negative exponents

Section 7.6 (6 topics)

Using i to rewrite square roots of negative numbers
Simplifying a product and quotient involving square roots of negative numbers
Adding or subtracting complex numbers
Multiplying complex numbers
Dividing complex numbers
Simplifying a power of i
(*) Some topics in this section are also covered in a previous section of this Objective.
Topics are only counted once towards the total number of topics for this Objective.

Section 8.1 (6 topics)

Finding the roots of a quadratic equation with leading coefficient 1
Finding the roots of a quadratic equation with leading coefficient greater than 1
Solving a quadratic equation using the square root property: Problem type 1
Solving a quadratic equation using the square root property: Problem type 2
Completing the square
Solving a quadratic equation by completing the square

Section 8.2 (4 topics)

Applying the quadratic formula: Exact answers
Solving a quadratic equation with complex roots
Discriminant of a quadratic equation
Solving a word problem using a quadratic equation with irrational roots

Section 8.3 (6 topics)

Graphing a parabola of the form y = ax2
Finding the x-intercept(s) and the vertex of a parabola
Graphing a parabola of the form y = (x-a)2+ c
Graphing a parabola of the form y = ax2+ bx + c: Integer coefficients
Classifying the graph of a function
Midpoint of a line segment in the plane

Section 8.4 (4 topics)

Solving an equation that can be written in quadratic form: Problem type 1
Solving an equation that can be written in quadratic form: Problem type 2
Finding the maximum or minimum of a quadratic function
Word problem involving the maximum or minimum of a quadratic function

Section 9.1 (4 topics)

Quotient of expressions involving exponents

Domain of a rational function
Simplifying a ratio of polynomials: Problem type 1
Simplifying a ratio of polynomials: Problem type 2

Section 9.2 (5 topics)

Multiplying rational expressions involving multivariate monomials
Multiplying rational expressions involving quadratics with leading coefficients of 1
Dividing rational expressions involving multivariate monomials
Dividing rational expressions involving quadratics with leading coefficients of 1
Quotient of two functions

Section 9.3 (5 topics)

Introduction to the LCM of two monomials
Adding rational expressions with common denominators and binomial numerators
Adding rational expressions with different denominators: ax, bx
Adding rational expressions with different denominators: x+a, x+b
Adding rational expressions involving different quadratic denominators

Section 9.6 (15 topics)

Solving a word problem on proportions using a unit rate
Solving a proportion of the form x/a = b/c
Solving a proportion of the form a/(x+b) = c/x
Solving a rational equation that simplifies to linear: Denominator x
Solving a rational equation that simplifies to linear: Denominator x+a
Solving a rational equation that simplifies to linear: Unlike binomial denominators
Solving a rational equation that simplifies to linear: Denominators a, x, or ax
Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
Solving a rational equation that simplifies to quadratic: Proportional form, advanced
Word problem on proportions: Problem type 1
Word problem involving multiple rates
Solving a work problem using a rational equation
Similar polygons
Indirect measurement

Section 10.4 (4 topics)

Solving an exponential equation by finding common bases: Linear and quadratic exponents
Evaluating an exponential function that models a real-world situation
Finding a final amount in a word problem on exponential growth or decay
Graphing an exponential function and its asymptote: f(x) = a(b)x