College Algebra Syllabus

MAT K172 CRN 13178 Spring 2015
Three Rivers Community College Norwich, CT 06360
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Phone Number (860) 456-1804 *Please call between the hours of 10:00 AM and 6:00 PM*
Friday 2:00-4:45 PM Room: D104
Office Hours: Friday 12:30-1:45 Room: D205E

Course Description

Through lecture, discussion of material, and practice, this course continues the development of algebraic concepts and skills.

Objectives

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.

Method of Evaluation

1) Quizzes/Homework 10%
2) Take Home Assignments 25%
3) Tests 40%
4) Final 25%

Quizzes will take place at the beginning of class. Students may use their homework during quizzes.

Take Home Assignments are to be handed in on the due date. Students are encouraged to work together on take home assignments, but each student is responsible for understanding the material. Late assignments will be accepted one class after they are due with 5 points taken off. A zero will assigned for any take home which is not handed in before or during the grace period.

Tests will be announced one week in advance. If you are going to be absent the day of a test, you **must** let me know, by email or phone before or on that day. Failure to do so will result in a zero for that test.

Final will be comprehensive.

All students are required to maintain a learning portfolio in Digication that uses the Three Rivers College Template.

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; and act at all times with honor.

ALL CELL PHONE WILL BE SHUT OFF AND PUT AWAY DURING CLASS

Grades	Equivalent	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
F	Below 63	0.0

Required Text

College Algebra, 4th edition, Beecher, Penna, Bittinger, Addison-Wesley.
Also, graph paper and a graphing calculator are required.

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. You can make an appointment with a DSP by calling (860) 383-5217. Please note: 1.) For academic adjustments, you will have to provide documentation of your disability to the DSP. 2.) Instructors cannot provide adjustments until you have delivered written authorization (from a DSP) to the instructor. 3.) Adjustments take effect when you deliver your written authorization to the instructor in person (provided there is adequate time for the instructor to make necessary arrangements). 4.) Adjustments do not apply to tests/assignments that were due prior to your delivering written authorization to your instructor in person.

College Withdrawal Policy

Students may withdraw, at the Registrar's Office, for any reason on or before December 8, 2014.

Resources

Free tutoring is available at the Tutoring and Academic Success Center (TASC).
Please use the service as needed.

After the successful completion of the course the student must 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.

Course Outline and Homework

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 Equations, Models 3.2	3, 7, 13, 19, 23, 31, 35, 41, 47, 57, 69, 79, 87, 99, 101
Graphs of Quadratic equations 3.3	3, 9, 13, 17, 19, 23, 25, 27, 31, 39, 41, 45
Rational and Radical Equations 3.4	1, 9, 17, 19, 23, 29, 37, 53, 63, 69, 85
Solving Equation & Inequalities w/ Absolute Values 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, The 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 equations 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 Equations and Inequalities 7.4	1, 5, 7, 17, 19, 27, 33, 59, 61, 65