

Intermediate Algebra Syllabus

MAT 137 CRN 11255 Spring 2013
Three Rivers Community College Norwich, CT 06360
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Course Description

Through lecture, discussion of material, and practice, this course continues the development of algebraic concepts and skills. Questions during lecture can be very helpful and are encouraged.

Objectives

To give the student an understanding of and the ability to utilize the following: modeling, linear equations, functions and graphs, trigonometric functions, systems of linear equations, inequalities, rational expressions and equations, operations on radicals and rational exponents, quadratic equations, exponential and logarithmic functions.

Method of Evaluation

- 1) Take Home Assignments 25%
- 2) Tests 50%
- 3) Final 25%

Take Home Assignments will be due one week after they are assigned. 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.

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

Procedure

There will be discussion of homework and new material will be presented each class. Questions are encouraged. Students may be asked to share their knowledge of a topic with the class.

Attendance

Attendance is strongly encouraged.

Required Text

Elementary and Intermediate Algebra; Marvin Bittinger: Upper Saddle River, NJ; Pearson Prentice Hall; 2012; 4th edition.

Note: Student will also need a graphing calculator and graph paper.

Course Outline

Sections

6.5-6.7

Trigonometry Handout

7.1-7.8

9.1 & 9.2

10.1-10.6 & 10.8

11.1-11.8

12.1-12.7

Topics

Factoring and Polynomial Equations

Right triangle Trigonometry

Rational Expressions, Equations and Functions

Systems of Linear Equations in Three Variables and Applications

Exponents and Radical Functions

Quadratic Equations and Functions

Exponential & Logarithmic Functions

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

Disabilities Statement

If you have a hidden or visible disability, which may require classroom or test-taking modifications, please see me as soon as possible so we may discuss options. If you have not done so, please contact Chris Scarborough, the disability counselor, at (860) 892-5751.

College Withdrawal Policy

Students may withdraw, at the Registrar's Office, for any reason on or before May 13, 2013.

Resources

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

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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 2×2 and 3×3 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