Intermediate Algebra

MAT 137   CRN 31525 Fall 2011   Three Rivers Community College   Norwich, CT 06360
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Tuesday/Thursday 2:30-3:45 Room D109
Office Hours: Tuesday/Thursday 1:50-2:20 Room D205E

Course Description

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

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) Tests
2) Assignments
3) Final Exam

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

Intermediate Algebra; Jay Lehmann: Upper Saddle River, NJ; Pearson Prentice Hall; 2011; 4th edition.

Note: Student will need a graphing calculator and graph paper.
ALL CELL PHONE WILL BE SHUT OFF AND PUT AWAY DURING CLASS

Course Outline

Sections	Topics
1.6	Functions
2.1- 2.3	Modeling with Linear Functions
Trigonometry Handout	Right triangle Trigonometry
3.2 & 3.3	Systems of Linear Equations
4.1-4.5	Exponential Functions
5.2-5.6	Logarithmic Functions
6.1- 6.6	Polynomial Functions
7.1-7.3 & 7.5 - 7.7	Quadratic Functions
8.1-8.3, 8.5 & 8.6	Rational Functions
9.1, 9.2 & 9.5	Radical Functions

Course Evaluation

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

Tests will constitute 50% of the course grade, assignments are worth 20% and the final exam is 30% of the course grade.

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 Dec. 9, 2011.

Resources

Free tutoring is available at the Tutoring and Academic Success Center (TASC). Students may

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