

MIDDLESEX COUNTY COLLEGE
EDISON, NEW JERSEY

MATHEMATICS DEPARTMENT

Date: December 15, 2009

Course Title: College Algebra

Course No. MAT 116

Class Hours: 3

Laboratory Hours: 0

Credit Hours: 3

Department Head Approval: _____
Maria DeLucia, Ph.D.

Dean Approval: _____
Reginald Luke, Ph.D.

Prerequisite: MAT 014, Algebra II, or equivalent

Textbook of Course:

Author: Crauder, Evans, Noell

Title: Functions and Change: A Modeling Approach to College Algebra,
4th Edition

Publisher: Houghton-Mifflin

Catalog Course Description:

This course is designed to prepare students for general education science and mathematics electives. Topics include concepts of algebra, algebraic functions and graphs, exponential and logarithmic functions and graphs, inequalities and systems of equations. Applications are emphasized.

Objectives of the Course:

The student will demonstrate through quizzes, examinations, written homework, laboratory reports, and projects the ability to:

1. interpret charts and graphs and discover the relationships among the variables involved.
2. use various modes to present data and functions.
3. perform basic algebraic manipulations.
4. relate sentences to formulas, tables, and graphs.
5. compute and describe qualitative rates of change.
6. identify the mathematics characteristics of linear, exponential, logarithmic, power, and quadratic functions.
7. apply mathematical principals to solving practical problems.

Day-by-Day Schedule

1.	Functions and formulas. Functions of one variable and several variables.
2.	Functions and tables. Averaging, rates of change, trends.
3.	Functions and graphs. Concavity, rates of change, inflection points.
4.	Functions given verbally. Comparing functions and words.
5.	Tables and trends. Tables from formulas, optimizing with tables.
6.	Graphs. Sketching, calculator, viewing windows, limiting values.
7.	Review
8.	Test 1
9.	Linear equations. Operations and the roles of variables.
10.	Nonlinear equations. Factoring, graphic solutions.
11.	Optimization. Peaks, valleys, and end points.
12.	Geometry of lines. Slope of a line.
13.	Linear functions. Constant rates of change, lines from data.
14.	Modeling with linear functions. Testing data for linearity, discrete data.
15.	Linear regression. Regression line, slope, trends.
16.	Systems of equations. Graphical and algebraic solutions.
17.	Review
18.	Test 2
19.	Exponential growth and decay. Constant proportional change.
20.	Modeling exponential data. Exponential data, exponential models.
21.	Logarithmic functions. Logarithm as inverse of exponential function.
22.	Power functions. Comparing exponential and power functions.
23.	Quadratic functions. Linear rates of change, quadratic regression.
24.	Polynomials and rational functions. Roots and end behavior.
25.	Review
26.	Test 3
27.	Review
28.	FINAL EXAM