

DELAWARE TECHNICAL & COMMUNITY COLLEGE
COLLEGEWIDE COURSE SYLLABUS

Campus:	Stanton	
Department:	Mathematics/Physics	
Course Number and Title	MAT 153 – College Math & Statistics	
Instructor Name:	Telephone:	E-mail:
Prerequisites:	MAT 015 or required math score on College Placement Test	
Corequisites:	None	
Course Hours and Credits:	4:0:4	
Course Description:	A study of exponents, radicals, quadratic equations, relations and functions, graphing, polynomial functions, systems of equations, inequalities, exponential and logarithmic functions, elementary statistics including organizing and presenting data, measures of central tendency and measures of variation.	
Materials:	The Mathematics/Physics Department recommends the use of a TI-83+ Graphic Calculator. Lecture demonstrations and instruction will included the use of the TI-83+. Calculators with QWERTY keyboards are inappropriate for this course and will not be permitted in test situations.	
Methods of Instruction:	Lecture or Online or Telecourse	
Manuals:	None	

CORE COURSE PERFORMANCE OBJECTIVES

The student will be able to:

1. Perform basic operations involving exponents and radicals. (CCC 7)
2. Solve quadratic equations. (CCC 7)
3. Perform operations involving functions. (CCC 7)
4. Graph polynomial functions. (CCC 7)
5. Solve systems of linear equations and inequalities. (CCC 7)
6. Solve application problems involving exponential and logarithmic functions. (CCC 2, 7)
7. Compute, analyze and interpret statistical data. (CCC 2, 6, 7)

MEASURABLE PERFORMANCE OBJECTIVES

- 1. Perform basic operations involving exponents and radicals. (CCC 7)**
 - 1.1 Use the basic operations of algebra to simplify and solve problems involving real numbers, exponents, polynomials.
 - 1.2 Solve linear and absolute value equations.
 - 1.3 Convert rational exponents to radicals and vice versa.
 - 1.4 Simplify radicals.
- 2. Solve quadratic equations. (CCC 7)**
 - 2.1 Solve quadratic equations by graphical methods.
 - 2.2 Solve quadratic equations by square root theorem.
 - 2.3 Solve quadratic equations by factoring.
 - 2.4 Solve quadratic equations using the quadratic formula.
- 3. Perform operations involving functions. (CCC 7)**
 - 3.1 Solve problems involving applications of linear functions.
 - 3.2 Evaluate a function for given values.
 - 3.3 Determine the domain of a function.
 - 3.4 Given sets of values satisfying linear functions, determine the function, and use that function to interpolate and extrapolate information.
 - 3.5 Solve problems involving application of quadratic functions.
 - 3.6 Solve problems involving applications of polynomial and rational functions.
- 4. Graph polynomial functions. (CCC 7)**
 - 4.1 Graph linear and quadratic functions.
 - 4.2 Sketch the graphs of polynomial functions.
 - 4.3 Sketch the graphs of rational functions.
 - 4.4 Graph piecewise functions
 - 4.5 Write the equation of a line in standard form and graph.
 - 4.6 Identify graphs and equations that represent functions.

- 4.7 Determine domain and range.
- 4.8 Find the zeros of a function.
- 5. Solve systems of linear equations and inequalities. (CCC 7)**
- 5.1 Solve a system of linear equations by various methods.
- 5.2 Perform the basic operations of matrices.
- 5.3 Solve problems involving applications of systems of linear equations.
- 5.4 Graph a linear inequality in two variables.
- 5.5 Solve linear programming problems graphically.
- 5.6 Solve problems involving applications of linear programming methods.
- 6. Solve application problems involving exponential and logarithmic functions. (CCC 2, 7)**
- 6.1 Use the basic laws and properties of exponents and radicals to simplify and evaluate expressions.
- 6.2 Graph exponential and logarithmic functions.
- 6.3 Convert exponential functions to logarithmic functions and vice-versa.
- 6.4 Find the logarithm of a number.
- 6.5 Simplify and expand logarithmic expressions by using the basic laws of logarithms.
- 6.6 Solve exponential and logarithmic equations.
- 7. Compute, analyze and interpret statistical data. (CCC 2, 6, 7)**
- 7.1 Arrange raw data into a frequency distribution.
- 7.2 Represent the data from a frequency distribution using a histogram and/or frequency polygon.
- 7.3 Find the mean, median, mode, range, and standard deviation for ungrouped data.
- 7.4 Find the mean and standard deviation of grouped data.
- 7.5 Calculate z scores and probabilities using the normal distribution.

EVALUATION CRITERIA

Students will demonstrate proficiency on all Measurable Performance Objectives at least to the 75% level. The grade will be determined using the College Grading System:

92 – 100	A
83 – 91	B
75 – 82	C
0 – 74	R

Students should refer to the Student Handbook for information on Academic Standing Policy, Academic Honesty Policy, Students Rights and Responsibilities and other policies relevant to their academic progress.