

SYNOPSIS

TITLE: ALGEBRA II & TRIGONOMETRY

COURSE NUMBER: MAT 300

GRADE LEVEL: 10-12

LENGTH OF COURSE: 36 WEEKS

QUARTER 1

Students will briefly review the fundamentals of Algebra I. The linear function will be reviewed in depth through multiple representations such as graphs, tables, equations. Domain and range will be introduced along with a review of relations and the general definition of functions. Students will study the quadratic function through tables, graphs and equations. The following topics will be covered in depth:

- **Linear Equations and Functions**
- **Systems of Linear Equations**
- **Linear Inequalities & Their Systems**
- **Functions & Relations**
- **Quadratic Functions & Equations**

QUARTER 2

Higher order polynomial functions will be analyzed and students will be able to simplify and factor higher order polynomial expressions. The fundamental theorem of Algebra will be introduced. Students will continue to study the definition of a function through operations with multiple functions. Concepts of domain will be reintroduced. Simplifying rational exponents radical equations will also be studied.

- **Polynomial Functions**
- **Rational Exponents & Radical Functions**
- **Operations with Functions (Inverse, composition, Arithmetic with Functions)**

QUARTER 3

Students will discover the inverse relationship of logarithmic and exponential functions through graphs, tables, expressions and equations. The rational function will be studied in depth with multiple representations. Students will discover multiple counting principles and then apply them in their study of simple probability. Statistical analytical skills will be discussed.

- **Logarithmic & Exponential Functions**
- **Rational Functions**
- **Counting, Combinations & Permutations**
- **Probability, Data Analysis & Statistics**

QUARTER 4

Multiple mathematic patterns in nature will be introduced through the study of binomial expansion, sequences and series. Problem solving using trigonometric functions and their graphs will be covered. Conic sections may be introduced if granted time.

- **Binomial Expansion**
- **Sequences & Series**
- **Trigonometric Functions & Their Graphs**
- **Conic Sections ****