



Year Long Course Plan

Department: Math

Course: Algebra 2B 450/451

Essential Learning Outcomes: After successfully completing this course, students will be able to:

- 1) Analyze and generalize patterns and represent them with algebraic expressions and equations.
- 2) Solve various equations and inequalities.
- 3) Model, solve and interpret mathematical and real world problems using algebraic expressions, equations and inequalities.
- 4) Graph a variety of mathematical functions using the parent function and transformations.
- 5) Use appropriate technology to, problem solve, analyze and interpret mathematical concepts.
- 6) Understand and apply measures of central tendency, variability, and correlation.
- 7) Understand basic concepts and rules of probability and apply them to real-world problems.
- 8) Construct and draw inferences from charts, tables, and graphs that summarize data from real-world situations.
- 9) Use the normal curve and its properties, to answer real-world problems using sets of data that are normally distributed.
- 10) Make predictions that are based on experimental or theoretical probabilities.
- 11) Create and interpret various discrete probability distributions.
- 12) Model Real World Data with Regression Equations.

Quarter 1	Quarter 2
<p>Unit 1: Rational Functions (ELO 1,2,3,4)</p> <ul style="list-style-type: none"> • Simplifying Rational Expressions • Graphing Rational Functions – Asymptotes and Holes • Solving Equations with Rational Expressions • Problem Solving with Rational Equations • Assessment -Written Test <p>Unit 2: Analytic Geometry (ELO 1,2,4)</p> <ul style="list-style-type: none"> • Graphing Circles, Ellipses, Hyperbolas, and Parabolas • Completing the Square to graph Circles, Ellipses, Hyperbolas, and Parabolas • Writing Equations of Circles, Ellipses, Hyperbolas, and Parabolas • Solving Quadratic Systems of Equations – Substitution and Elimination • Assessment – Written Test <p>Quarter 1 Project</p>	<p>Unit 3: Sequences and Series (ELO 1,2,3,4,5)</p> <ul style="list-style-type: none"> • Expanding Sequences and Series defined by explicit and recursive formulas • Writing formulas for arithmetic and geometric sequences • Determining the sum of a finite arithmetic series, finite and infinite geometric series. • Problem Solving with Arithmetic and geometric sequence and sum formulas • Assessment – Written Test <p>Unit 4: Trigonometry (1,2,3,5)</p> <ul style="list-style-type: none"> • Determining the angle measure in radians and degrees • Determining arc length and areas of sectors in real world applications • Determining linear and angular velocity in real world applications • Problem solving with triangles, the trigonometric functions and their inverses • Using trigonometry to determine the areas of triangles • Assessment – Written Test <p>Quarter 2 Project</p>

Quarter 3	Quarter 4
<p>Unit 5: Descriptive Statistics (ELO 6,8)</p> <ul style="list-style-type: none"> • Frequency Distributions and Their Graphs • Interpreting Graphs and Tables • Measures of Central Tendency and Variation • Constructing stem and leaf plots and box plots with or without outliers • Using Microsoft excel to construct histograms and pie charts from data • Assessment – Written Test <p>Unit 6: Probability (ELO 7,10,11)</p> <ul style="list-style-type: none"> • Basic Concepts of Probability • Conditional Probability • Compound Probability • Counting Principles • Probability Distributions • Binomial Distributions • Assessment – Written Test <p>Quarter 3 Project</p>	<p>Unit 7: Normal Distributions (ELO 8,9,10)</p> <ul style="list-style-type: none"> • Introduction to Normal Distributions • Normal Distributions: Finding Probabilities • Normal Distributions: Finding Values • Normal Approximations to Binomial Distributions • Assessment – Written Test <p>Unit8: Correlation and Confidence Intervals (ELO 9,10,11)</p> <ul style="list-style-type: none"> • Correlation • Regression Equations • Confidence Intervals • Assessment – Written Test <p>Quarter 4 Project</p>