

## **Outline of coursework: College Algebra**

### **1<sup>st</sup> nine weeks:**

1. Systems of Equations and Inequalities – substitution, elimination, applications, graphing inequalities, linear programming, 3 equations in 3 variables
2. Matrices – echelon form, adding, multiplying matrices, inverses, determinants, Cramer's Rule
3. Sequences, Series and Probability – summations, arithmetic sequences, geometric sequences, binomial theorem, permutations, combinations, probability

### **2<sup>nd</sup> nine weeks:**

1. Systems of Equations and Inequalities – substitution, elimination, applications, graphing inequalities, linear programming, 3 equations in 3 variables
2. Matrices – echelon form, adding, multiplying matrices, inverses, determinants, Cramer's Rule
3. Sequences, Series and Probability – summations, arithmetic sequences, geometric sequences, binomial theorem, permutations, combinations, probability

## **Trigonometry**

### **3<sup>rd</sup> nine weeks:**

1. Trigonometric Functions – angles, functions, radians, unit circle, graphs, reference angles
2. Graphing trigonometric functions – 6 functions, applications, bearings, identities, equations
3. Analytic Trigonometry – subtraction and addition formulas, multiple angle formulas, product to sum formulas, inverse trigonometric functions

### **4<sup>th</sup> nine weeks:**

1. Applications of Trigonometry – law of sines, law of cosines, vectors, dot product
2. Trigonometric form for complex numbers – absolute values, products, quotients, De Moivre's Theorem, parabolas, ellipses
3. Topics from Analytical Trigonometry – Hyperbolas, parametric equations, polar coordinates, polar equations of conics