

## **Algebra III with Statistics Syllabus**

### **I. Topics to be covered**

1. Matrix operations
2. Linear programming
3. Conic sections
4. Polynomial functions
5. Linear equations and inequalities
6. Quadratic equations and inequalities
7. Binomial Theorem and Pascal's triangle
8. Polar coordinates
9. Various data analysis and statistics
10. Probability of mutually exclusive, independent and dependent events.

### **II. Objectives**

Students will be able to:

1. Utilize matrices to solve problems.
2. Solve problems involving maximum or minimum values of functions.
3. Graph conic sections.
4. Graph polynomial functions.
5. Approximate zeros using Descartes' Rule of Signs.
6. Describe the end behavior of a polynomial function.
7. Solve systems of linear and quadratic equations and inequalities.
8. Expand powers of binomials.
9. Plot points in a polar coordinate system.
10. Compare summary statistics for sets of data represented in various ways.
11. Calculate descriptive statistics of various data.
12. Test a hypothesis for a study (using z-scores and a t-test).
13. Calculate probabilities of events using permutations, combinations, and laws of probability.
14. Determine the probabilities of an event using a frequency distribution curve.
15. Analyze differences among experimental, simulation, and theoretical probability techniques, including the advantages and disadvantages of each.

### **III. Class Expectations**

1. Respect yourself and others.
2. Talk ONLY when appropriate.
3. Follow all school rules as stated in handbook.
4. NO food or drinks.
5. Complete all assignments.

#### **IV. Assessments**

Grades will be determined based upon tests, quizzes, and homework.

Tests: We will typically have four to six tests per six weeks, either at the middle or end of each chapter or sometimes both.

Homework: Homework is VERY important! It is generally assigned on a daily basis and will count as a grade. ALL problems should be worked and answered.

Quizzes: Various quizzes will be given during each chapter. Generally they will be announced, but not always!

#### **V. Make-up work**

Any work missed must be made up. Missed tests or quizzes are to be made up at 7:00 AM. You are responsible for making up assignments. Any work or test not made up will result in a zero.

#### **VI. Materials**

1. Three-ring binder
2. Pens/pencils
3. Scientific (not graphing) calculator – I recommend TI-30X IIS
4. Graph paper to keep in binder

\*\*The academic misconduct policy of Cullman High School will be followed in this course.

\*\*The attendance policy of Cullman High School will be followed in this course.

\*\*All requests for accommodations, for this course or any Cullman High School event, are welcome from students and parents.

\*\*Any student who receives failing grades during this course is urged to discuss this with the teacher.

I appreciate your cooperation. If you have any concerns, please feel free to contact me at 734-3923.