Course Syllabus

1. Title – AP Statistics – Honors

2. Text – *Stats: Modeling the World* (Bock, Velleman, and DeVeaux; Pearson/Addison-Wesley, 2004)

3. Prerequisite - C or better in Algebra II or consent of department

4. Course Description

   Throughout the year, students will be exposed to four broad conceptual themes, *Exploring Data, Planning a Study, Anticipating Patterns,* and *Statistical Inference*. This class is aligned to an AP Statistics curriculum with the intent of preparing interested students for the AP Statistics exam and the potential of receiving college math credit. <u>Written work and the ability to express one's mastery of a problem through words is a major component of this course.</u> With this in mind, assignments and assessments require students to respond in context with more than the "correct answer". Students are expected to provide adequate justification for their work throughout the course. Technology such as the TI-Nspire will be used to enhance student learning.

5. Course Content

   Unit 1: Exploring and Understanding Data
   - Categorical vs Quantitative data
   - Displaying and Describing Categorical Data
   - Displaying Quantitative Data
   - Describing Distributions Numerically
   - Standard Deviation and the Normal Model

   Unit 2: Exploring Relationships Between Variables
   - Scatterplots, Association and Correlation
   - Linear Regression
   - Re-expressing Data

   Unit 3: Gathering Data
   - Understanding randomness
   - Sample Surveys
   - Experiments

   Unit 4: Randomness and Probability
   - From Randomness to Probability
   - Probability Rules

- Random Variables
- Probability Models

Unit 5: From Data at Hand to the World At Large (Statistical Inference Pt 1)
- Sampling Distribution Models
- Confidence Intervals for Proportions
- Testing Hypothesis about Proportions
- Comparing Two Proportions

Unit 6: Learning About the World   (Statistical Inference Pt 2)
- Inferences About Means
- Comparing Means
- Paired Samples and Blocks

Unit 7: Inference When Variables are Related
- Chi-Square Distributions
- Inferences for Regression

6. Course Format
   Course material in Statistics will be presented in a variety of instructional methods, including, but not limited to:
   i. Teacher led lectures
   ii. Small group discussion
   iii. Hands-on work with calculators, other technology, and manipulatives
   iv. Analysis of mathematical tasks
   v. Class projects
   vi. Student Presentations
   vii. Group work
   viii. Discovery/Problem solving opportunities

7. Course Expectations
   a. Students are expected to be active participants in the learning process. This includes participating in class discussions, thinking about questions posed by the teacher and by classmates, construct viable mathematical arguments, and to help create an atmosphere that is conducive to learning.
   b. Students are expected to be responsible students. Responsible students are ready to learn throughout class by having required materials, being respectful of others and self, and being focused on mathematics. Students are also expected to complete assigned tasks (homework, class work, and other assignments), and seek extra help from the classroom teacher, as needed. Furthermore, responsible students will correct mistakes on homework and quizzes and will do their best to learn for understanding.
   c. Students are expected to show knowledge of all course objectives and apply that knowledge to real world situations. Furthermore, retention of material beyond the unit assessments in necessary. Students are expected

to apply previously learned mathematics to new content to strengthen their mathematical understanding. Students will be expected to apply algebraic, numerical, and graphical reasoning to solve problems and explain their reasoning to others.

    d. Students will be asked to synthesize, analyze and evaluate mathematical concepts to create further mathematical ideas.

    e. The TI-Nspire is required.

8. Grades
    a. Homework 5-10%
    b. Quizzes/Special Assignments 30-40%
    c. Tests 60-70%
    d. Group grades may be given on homework and projects.
    e. As per department policy, extra credit shall not exceed 2% of the students' grade.

9.   Mathematical Practice Standards: All Morton High School Students will:
    a. Make sense of problems and persevere in solving them
    b. Reason abstractly and quantitatively
    c. Construct viable arguments and critique the reasoning of others
    d. Model with mathematics
    e. Use appropriate tools strategically
    f. Attend to precision
    g. Look for and make use of structure
    h. Look for and express regularity in repeated reasoning