AP STATISTICS
2015-2016 Syllabus

Goals:

AP Statistics is the equivalent to a one semester, introductory, non-calculus based, college course in statistics. This course will introduce participants to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Participants are exposed to four broad conceptual themes:

1) **Exploring Data**: Observing patterns and departures from patterns.
2) **Sampling and Experimentation**: Deciding what and how to measure.
3) **Anticipating Patterns**: Producing models using probability and simulation.
4) **Statistical Inference**: Confirming models.

Topics of Interest

- Descriptive Analysis: being able to analyze a distribution based on its visual representation.
- Two-Variable Statistics: determining the amount of correlation between variables.
- Probability: Basic and binomial probability in order to consider the chances of life events.
- Inferential Statistics: being able to analyze data based on the distribution of values (mean and standard deviation, proportions, etc.) in order to determine the significance of certain events.
- Experimental Design: designing and conducting experiments and observational studies in order to gather, analyze, and interpret data.

Structure of the test

The Advanced Placement Statistics test is broken in to two parts.

Part 1: 40 Multiple Choice problems over 90 minutes. Each problem is recommended to take about 2 minutes. Each multiple choice question is equally weighted.

Part 2: 6 Free Response problems over 90 minutes. The first 5 questions are expected to take about 13 minutes each, and together are worth 75% of this section. The last question is expected to take about 25 minutes, and is worth 25% of this section (12.5% of the entire test).

****Special Note (Read this, it's kind of a big deal):**

AP Art History is a course on art, but runs more like a history course. Similarly, AP Statistics is a course on statistics, but runs more like an English course. There are assigned readings to help students begin to gain an understanding of the material before each class (this is pre-reading). The homework is provided not merely as practice, but as an avenue for opening class discussions about the topics in statistics. Notes should be taken during readings and while working on exercises in order to generate questions that can be brought into class. Active learners (students willing to ask questions, work with others, and participate in and out of class) in statistics tend to do well.

Teaching Strategies

Most class periods begin with an open invitation to ask questions about the reading, exercises, problem sets, or tests/quizzes taken. This discussion either leads into the topics of the day, or otherwise provides a review of previous topics or makes the connections between course topics. This is meant to facilitate a conversation amongst the class of students rather than with the teacher.

Lecture/notes stem from this opening conversation, often leading directly into new content, and thus it is recommended that all points in the class are consider a time to take

notes as there is not always a clear separation between discussion of homework and discussion of new content.

Mr. Shahin does utilize a flipped classroom strategy for some topics, and so students are expected to regularly watch (and potentially rewatch) provided videos in order to help grasp the material.

Many days will end with 10-20 minutes of time to ask individualized questions, begin the reading for the next night, and/or complete exercises from the book or problem set.

Tips on How to Succeed in this Class:

- ✓ Ask questions!
- ✓ Be an active participant in class discussions.
- ✓ Begin all assigned problems before class and be prepared with questions.
- ✓ Read the textbook! (I will help you learn how to read a math text book, but you have to do the reading)
- ✓ Take care of make-up work promptly.
- ✓ Show Mr. Shahin rough drafts of special problems or projects.
- ✓ Have a network of Stats students to help and be helped by.

This is a **college-level course** and will be conducted as such. Students are expected to be highly motivated and those who are can expect to experience success. Students are encouraged to come see me before school, after school, or during H.O.T. Lunch to discuss topics for which they need clarification.

Grading:

Homework - 10%
Quizzes and Minor Projects – 30%
Tests and Major Projects - 60%

Textbook Policy:

Every student will be assigned a textbook. Students are responsible for their assigned textbook. If a textbook is damaged or lost, a student can expect to be charged a fine or fee.

Materials Needed:

- TI-83 or -84 Plus graphing calculator preferred –Every student **must** have access to a graphing calculator for classwork and homework. If a student cannot purchase a calculator, he/she may borrow one for in class use only. Any calculator that is lost or damaged will result in a minimum charge of $120
- Lots of paper for wicked awesome notes and to work assignments upon.
- A three-ring binder is suggested as a means of organizing units, notes, vocabulary, and tests.

Textbook:

Yates, Daniel S., Moore, David S. and Starnes, Darren S. (2003). *The Practice of Statistics*. W.H. Freeman and Company. 2nd Edition.