## **Practical Applications of Statistics** In the Work Place And In Everyday Life

We live in an information society; raw data, graphs, charts, rates, percentages, probabilities, averages, forecasts, and trend lines are an inescapable part of our everyday lives. It is hard to pick up a newspaper without finding an article in which a recent study makes a claim about the effect of a food product on people's health. Studies in which people who ate oatmeal had lower cholesterol than those who did not might suggest that those with high cholesterol would be wise to eat oatmeal. In AP Statistics, we learn to examine the details of studies. We might question if oatmeal really lowered cholesterol or did the subjects just eat oatmeal instead of their normal breakfast of two fried eggs? Perhaps eating cornflakes would have had the same effect.



o://www.nearingzero.net/sci math and stats.htm

Many companies use statistics. Business decisions are made based on market research. Advertising executives want to know whether a new ad campaign significantly increases sales. Doctors must know the reliability of medicine and treatments. Products such as pharmaceuticals require significant evidence of effectiveness and safety. Politicians rely on data from polls and public opinion. Courts inquire about statistical significance in hearing class action discrimination cases. Any company that expects to obtain a government contract must have strong evidence of a statistical quality control program. Statistical literacy is important as we are all consumers of goods and services and need to make intelligent choices. Advanced Placement Statistics provides the opportunity for students to learn how to make good decisions with data.



at MCHS 2019-2020 Teacher: Steve Heberer



## **AP Stats FAQ**

## What is AP Statistics?

AP Stats is a college level introductory course in statistics. You'll learn how to collect, organize, analyze, and interpret data.

### Why should I take it?

Statistics is the most widely applicable branch of mathematics. It is used by more people than any other kind of math.

### How hard is AP Stats?

It's a college course, so the expectations are <u>high</u>. You will need to think hard about the concepts. You'll write – a lot. You won't get a good grade just for showing up. There is plenty of work, yet we don't turn in much of it. You <u>must</u> be a self-motivated scholar. The students who aren't....usually end up learning little and dropping the class.

### What is class like?

Nearly every day we cover something new. We rarely go over HW in class. Sometimes we do labs – which always seem to involve a food item!

## Do you have to be a top rate mathematician?

No. The course does not depend heavily on abstract mathematical concepts, but you DO need a <u>strong</u> <u>background (usually A's, possibly</u> <u>B's) in Algebra II</u> – regular or honors. Our calculators will help us with much of the numeric drudgery inherent in statistics.

### Can I take Stats in college?

Yes. Statistics is required for many majors, and strongly recommended for others. However, if you score high enough on the AP Exam, you will receive the Statistics credit. Even if you don't, you will have a strong foundation to do well in a college stats class.

## Why take it at MCHS?

At Central, it's a full year course, rather than a college semester, so we go at a more reasonable pace.

# Would it be my only math course next year?

It could be. Many students also enroll in a PreCalc or Calculus course and find the combination very 'do-able'. In any case, stats is not really a 'math' course – it's a whole different animal.

### Who can sign up?

You should have a strong background (usually A's, possibly B's) in Algebra II (regular or Honors) and have the recommendation of your teacher.

### Who does sign up?

The course has typically been about 2/3 seniors, 1/3 juniors, and an occasional sophomore.

### Need more info?

See Mr. Heberer or search online for info for AP Statistics.

21% of the boys and 30% of the girls support me; therefore I'll get 51% of the vote.



http://lil67babygirl.tripod.com/id1.html

### What the Course Covers The Four Major Components of AP Stat

#### 1. Experimental Design

Students design appropriate experiments in order to draw conclusions that can be generalized to the population of interest. Students will also interpret studies and experiments to determine whether the conclusions from the studies warrant consideration.

### 2. Exploring Data

Students collect and examine data and display the patterns that emerge. Data from students in class as well as real world data sets are gathered and used to illustrate concepts.

### 3. Producing Models Using Probability and Simulation

Students learn to anticipate patterns and produce models for prediction. Students use simulations to model situations that are not practical to replicate using other methods.

#### 4. Statistical Inference

Students learn what can be generalized about the population. Students also consider how to investigate research questions, design a study, and interpret the results.