

## 2016 Session Outline

**Course Description:** We will consider the four major content themes of AP Statistics: exploratory data analysis, planning and executing statistical studies, probability and random variables, and statistical inference. We will stress the use of technology and during the course of the week. Our goal will be to expand your knowledge base with some in-depth discussions of the AP Statistics topics to help with those tough questions your students are sure to ask. Generally, we will consider: the philosophy of the course, the statistical techniques needed, and communication as an essential part of "doing statistics." I will be bringing a large amount of AP Statistics material (information, data, activities, tests & quizzes, bibliographies, PowerPoints, etc.) The general sequence of statistical topics follows:

Day 1: Our first day will be a plunge into the analysis of data. We will analyze data sets designed to highlight the important descriptive and inferential techniques, univariate and bivariate, in the AP Statistics course. The data sets are long on interest, and are classroom-ready.

Day 2: Our second day will be a tour of Experimental Design (completely randomized design and randomized block design) and Sampling techniques (simple, stratified, cluster, systematic). We will focus on the decisions involved in choosing an experimental design strategy, methods of control of potentially confounding variables, and what factors would lead one to particular choices of an appropriate sampling design.

Day 3/4: Our third and fourth days will focus on probability and random variables, and their role in statistical inference. We will explore the logic of statistical inference (hypothesis testing and confidence intervals). Then we will show how this logic threads its way through inferences about means, proportions, slopes in regression, and inferences about categorical data.

Interspersed with the content described above we will consider the philosophy of the AP Statistics course as an active encounter with data, and how this affects teaching strategies. Come armed and ready to get out of your seats! The structure and content of the AP syllabus will be examined, and of course the preparation of students for the AP Statistics Exam will be a continuing concern.

What to bring: Please bring the following items when you come:

- Your calculator
- A 2G flash drive to take home lots of stuff
- Favorite scribbles or activities to share (preferably electronically)
- Lots of questions about content and teaching strategies
- A cheerful smile